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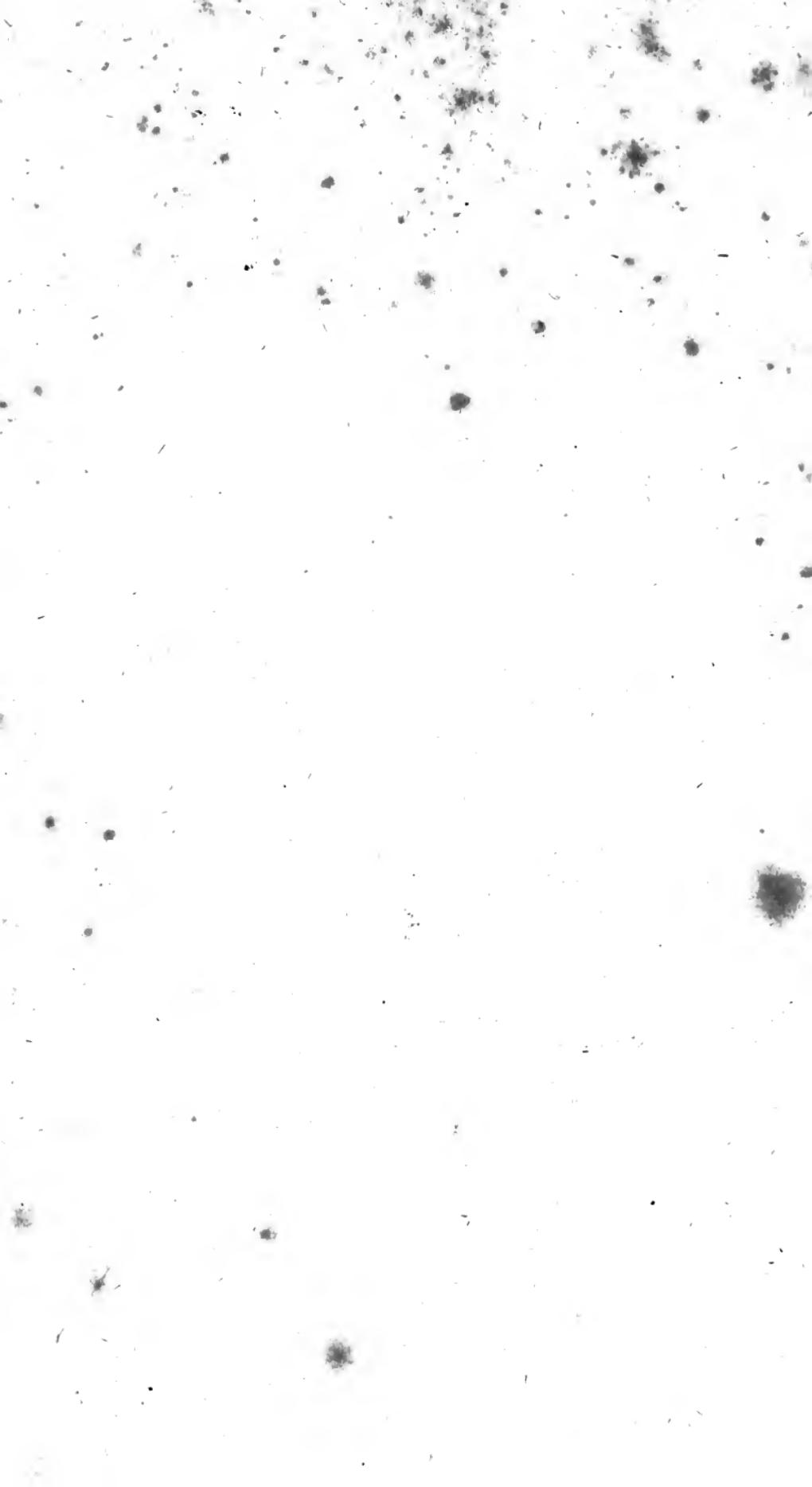




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THE
STOMACH
IN ITS MORBID STATES;

BEING

A PRACTICAL ENQUIRY INTO

THE NATURE AND TREATMENT OF DISEASES OF THAT
ORGAN;

AND INTO THE INFLUENCE THEY EXERCISE

UPON THE

ORIGIN, PROGRESS, AND TERMINATION OF DISEASES OF

THE LIVER, HEART, LUNGS, AND BRAIN.

BY LANGSTON PARKER,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, AND
FELLOW OF THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF LONDON, ETC.

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TO

JOSEPH HODGSON, Esq., F. R. S., &c., &c.

MY DEAR SIR,

SOME years ago, you advised the completion of a work on Human and Comparative Physiology, the plan of which I submitted to your judgment. Circumstances have occurred to delay, at least, the completion of that work. In place of it, permit me to dedicate to you the present Treatise: and believe me, my dear sir, with esteem for your friendship and great respect for your high professional attainments, to remain ever

Your obliged and faithful

Friend and servant,

LANGSTON PARKER.

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P R E F A C E.

THE work I now lay before the public is materially different from all those which have preceded it on the same subject: it is neither devoted chiefly to the consideration of pathological changes, like that of Dr. Abercrombie, nor is it limited to one class of primary morbid states. The subject of organic disease, in itself, has never appeared to me so important as that of the primary conditions which precede it, which, by their continuance through a series of years, ultimately induce incurable affections, either in the organs where they are seated, or, by sympathy, in remote parts. In a practical point of view, the latter is of infinitely greater importance than the former.

It is from this circumstance that I have devoted the following treatise principally to the consideration of the primary morbid conditions of the stomach, and the diseases they induce, by sympathy, in remote parts, as the liver, lungs, heart, and brain. The primary morbid conditions of the stomach may be referred to two classes: 1. Congestive or inflammatory states; and, 2. Affections of its sensibility, both organic and animal. There is a third form—a disordered state of the secretions, which I must denominate primary, though it is not really so: we cannot, however, appreciate any pathological condition which precedes it.

After having noticed these conditions of the stomach, their symptoms, and mode of treatment, I have passed to the consideration of their influence upon the origin, progress, and termination of diseases in other organs. The question of morbid sympathy is one of extreme importance; and, as far as the present subject is

concerned, I am not aware of any author, with the exception of Dr. James Johnson, who has more than touched upon the sympathies of the stomach with internal organs. I have here endeavoured, in some measure, to illustrate this influence; convinced that the primary morbid states, to which I have alluded in the earlier parts of this work, are daily the sources of disease in remote internal organs, which ultimately, by their continuance, terminate in organic change.

142, *Snow-hill, Birmingham,*
Jan. 15, 1838.

THE
STOMACH IN ITS MORBID STATES &c.

CHAPTER I.

OF MORBID STATES OF THE STOMACH CHARACTERISED BY INCREASED VASCULARITY.

THE stomach presents two primitive morbid states : the first consisting in lesions of its sensibility, and the second in lesions of its circulation ; the latter comprises that great variety of form in diseases of the stomach which is termed inflammatory, and which may vary from a mere increased fulness of blood, not tending to the destruction of the parts in which it is seated, to the different forms of inflammation whose continuance is necessarily followed by organic change. It is not necessary here to enquire whether the second is not, in all instances, the consequence of the first. It is with the latter we shall commence the study of this class of diseases.

The most simple forms of diseases of the stomach, in which derangements of the vascular system are the prominent features, are characterised by morbid fulness of blood in the mucous coat, which, interfering with the functions of the stomach, interrupts digestion, and, if unchecked, ultimately lays the foundation of inflammatory disease. This morbid fulness of blood in the mucous coat results from irritation, generally prolonged and frequently repeated. The irritations which produce sanguineous congestion of the mucous coat, are, most commonly, dietetic errors ; and it then bears the name of inflammatory indigestion. It may, however, come on as the consequence of any disease, or during its progress ; and in these instances it is highly necessary that the state of the stomach should be ascertained before any plan of treatment be determined on, lest we convert what is merely a state of congestion of blood into a true inflammation. The form of disease which we are considering is, in general, not dangerous ; and if it remain in the state of congestion merely, disorganisation of the stomach is not to be apprehended, although a repetition of stimulants or irritations may easily convert the congestion into inflammation. Persons thus affected are on the brink of a serious disease, but not in it. Sanguineous congestion may vary in situation or occupy a more or less extensive portion of the stomach ; hence the variety of symptoms which attend it, both

in their degree of intensity and the number of sympathies by which they are accompanied. The symptoms themselves may vary from mere distension after food, to constant vomiting attended with thirst, dull pain, fever and headache.

Sanguineous congestion of the mucous coat of the stomach, is commonly termed gastric irritation, indigestion, dyspepsia; by the French, *surexcitation gastrique*, *embarras gastrique*, *digestion laborieuse*. It may appear as a temporary or evanescent affection, or, from its constant occurrence in the evanescent form, it may become permanent. The general symptoms which attend it, will be found illustrated by the detail of a few cases selected from those which are daily presenting themselves to our notice.

A gentleman accustomed to live well, after more than usual indulgence, applied to me labouring under the following train of symptoms, which had harassed him, with some variation for two months:—constant uneasiness in the epigastrium, increased by pressure and taking food; his meals were always succeeded by distension of the stomach, flatulence, nausea, and occasional vomiting. He had cough, hurried breathing occasionally, and palpitation, an accelerated pulse, partial headache, with giddiness and indistinct vision; the bowels were confined, and the urine was scanty and high-coloured; the tongue moist, coated, red at its point and edges, with an elevated and intensely vivid state of the papillæ. To these symptoms are commonly added, in different cases, and in different individuals, where the susceptibility of their organs are different, thirst, general feelings of lassitude, pains in the chest, back, shoulders, or upper part of the abdomen; general pulsations, more marked in the epigastrium, and synchronous with those of the heart; heat in the palms of the hands or soles of the feet; flushing of the face, co-existing with certain local symptoms which point to the stomach as the sole origin of all this mischief, which symptoms are pain, nausea, or vomiting after food, with most distressing flatulence, and feelings of distension and fulness about the stomach, amounting almost to suffocation.

It may be said, and is said by Broussais and the pupils of his school, that these symptoms of general and local vascular excitement are dependent upon an inflamed and not merely a congested, state of the mucous membrane of the stomach; but with all the great respect I entertain for one who has almost created our present state of knowledge on gastric diseases, there are many proofs which lead us to suppose that these symptoms are not indicative of a true inflammation, but of a mere evanescent congestion, or fulness of blood in the part, for we see them subsiding with the cause that produced them when they are slight, and occurring and subsiding again, and thus continuing for years, without producing emaciation or any serious state of disease. Again, the disease gives way, in many cases, in twenty-four hours, to a proper plan of treatment; and a patient will change from a state of suffering, indicated by the symptoms above detailed, to one of perfect health, by the simple

application of ten or a dozen leeches to the epigastrium, and the administration of an aloetic aperient, or a solution of some neutral salt, as the sulphates of soda and magnesia in some bitter infusion.

It would be difficult to ascertain the true pathologic character of this affection (which never of itself is fatal) unless we had opportunities of examining its nature in patients dying, during its continuance, from other diseases.

A man, aged forty, who had been troubled with headach for some years, eat freely of cucumber and some other indigestible food, which produced vomiting, uneasiness in the stomach, distension, flatulence, and all the common symptoms of indigestion. During their continuance he was seized with giddiness, which terminated in profound coma, in which state he died, thirty hours after its commencement. On examining the body, eight hours after death, the middle lobe of the left central hemisphere contained a softened portion of brain, about the size of a walnut. The mucous membrane of the stomach was vividly injected in patches, which were more numerous towards the pyloric portion of the organ. This case is interesting in a double point of view:—first, as it exhibits the state of the mucous coat of the stomach during a fit of indigestion, and explains the pathology of one of its forms; and, secondly, we appear to trace some relation between the affection of the stomach and the old standing disease of the brain. The sudden invasion of the attack of indigestion seems to have produced death by re-acting upon the brain, in which an old source of irritation existed.

The preceding case shows the pathology of this form of indigestion, consisting in mere fulness of blood, increased determination, owing to an increased or undue irritation in the stomach from the presence of indigestible food. This state of stomach is termed by Andral, hyperemia¹ of the stomach, in which the blood is propelled into the digestive organs from some irritating cause. It is a state of disease approaching to inflammation, but ought to be carefully distinguished from it.² Dr. Beaumont has shown that the mucous membrane of the stomach becomes red and dry from undue excitement; sometimes irregular, circumscribed, red patches, varying in size and extent from half an inch to an inch, are found on the internal coat. These appear to be the effect of congestion in the minute blood-vessels of the stomach.³ The pathology of this form of disease consists, then, in mere morbid fulness of blood in the mucous coat; other alterations must be present to constitute the true inflammatory condition. These alterations are observed in the change either of the colour or consistency of the mucous membrane

¹ ὑπερίη, excess of, αἷμα, blood.

² Cours de Pathologie Interne, p. 4, Paris, 1836.

³ These observations were made upon Dr. Beaumont's man-servant who had a fistulous communication with the stomach, through which the process of digestion could be observed. A portion of the side and stomach had been carried away by a musket-shot. The doctor kept this man for the purpose of making experiments upon his digestion.

in thickening or softening of the mucous coat itself, or alterations in the condition of the submucous cellular or muscular coats. Andral believes that true inflammation of the mucous membrane of the stomach is seldom unaccompanied by thickening.

The degree of local or constitutional disturbance which attends a superabundance of blood in the mucous coat of the stomach, will depend upon the degree of congestion and its extent, whether it be confined to small patches of redness, or extend to a general vascular fulness of the whole mucous membrane ; in the former instance the symptoms would be slightly local ones ; in the latter, a general state of constitutional disturbance would be present. This state of stomach is commonly observed at the commencement both of eruptive and continued fevers ; it accompanies and complicates almost all inflammatory diseases.

The local symptoms accompanying this form of disease in the stomach are commonly very slight ; they sometimes disappear in a short time and are quickly renewed from any fresh source of irritation. This, in Andral's opinion, stamps it at once as a disease distinct from inflammation. The following case exhibits its most simple and common form :—

A gentleman, accustomed to live freely and indulge in the use of malt liquors, became troubled, after indulgence, with nausea, acidity, and distension after food in the stomach and bowels. The tongue was moist and coated. He had no headache, nor any other sympathetic affection. The ordinary stomach medicines I employ (referred to in the chapter on treatment) cured the patient in twenty-four hours.

The ease with which the first attacks of gastric irritation are commonly removed induces persons to believe that the disease is of little consequence, and that repeated attacks occasion no further inconvenience or evil than that felt during their continuance ; but it must be remembered that these repeated attacks of irritation, producing congestion, directly debilitate the blood vessels of the mucous coat, and that an actual state of inflammation may succeed to these repeated irritations.

It is evident that the hundred and forty-fifth aphorism of Broussais¹ relates to a state of disease in which mere redness of the mucous membrane is present, which may continue for weeks, months, and years, with all the symptoms of indigestion present during the whole of this time, and no organic change be the result. Even after the long continuance of such disease, the stomach may return to its healthy state under a proper plan of diet and medication. There is no distinct line of separation to be drawn between the mere fulness of blood or vascular irritation of the mucous coat, and an actual state of inflammation ; indeed, the former appears to be but the primary condition of the latter, although disease may

¹ La plupart des dyspepsies, gastrodynies, gastralgies, pyrosis, cardialgies, et toutes les boulimies sont l'effet d'une gastro-entérite chronique.—*Examen des Doctrines Médicales*, Aphorism cxlv.

remain fixed in the first form. The mere irritation of the stomach consequent upon occasional excess is considered by some as a shade of inflammation. "Mere gastric irritation (*embarras gastrique*)," says Roche,¹ "is certainly an evanescent form of inflammation. Its symptoms consist in a feeling of weight and uneasiness about the region of the stomach, loss of appetite without thirst, bitterness in the mouth, eructations, and nausea: attempts to vomit, and even actual vomiting may be present." These are the symptoms of a common bilious seizure, which are attributed by the pathologists of the school of Broussais to a slight form of inflammation of the mucous coat of the stomach. The term, inflammation, is here employed to designate a certain degree of irritation, of which the chief morbid state is preternatural fulness of blood.

The terminations of this state of disease, which is characterised by mere symptoms of indigestion, may, if neglected or ill-treated, be various. It may, in the stomach, end in a true inflammatory state, or, from the constant irritation being kept up, it may induce disease in other organs which are most susceptible, from predisposition, of being thrown into a state of disease. These organs are, generally, the liver, the brain, the heart, and the mucous surfaces of the bronchiæ. To the latter parts, irritation soon spreads, and the stomach-cough is soon added to continued gastric irritation. Hypertrophy of the liver very commonly succeeds to continued vascular gastric irritation, without any inflammatory disease existing in the stomach, which would of itself, prove fatal except so far as its influences the condition of other organs. Broussais, Cruveilhier, Andral, Carswell, and other pathologists, attribute hypertrophy of the liver to a continued state of gastric irritation of the inflammatory kind. Even where it cannot be easily traced that affections of the liver are directly consequent upon gastric irritation, we find them so closely allied, so constantly existing together, that no doubt can be entertained of their mutual dependence and relation. Affections of the heart commonly cause congestions of the mucous coat of the stomach, which are accompanied by all the symptoms of indigestion, which is in these instances commonly then taken for a primitive disease. I was consulted, a few days since, by a gentleman whose case will be found in another part of this work for what he considered mere prolonged and obstinate indigestion. On examining carefully into his state, I discovered that he had extensive valvular disease of the heart, and that his stomach disease resulted from an unusual quantity of blood retained in the mucous coat of the stomach and its veins from a mechanical obstacle to its free return to the heart, caused by disease existing in that viscus. On the other hand, vascular irritations in the cardiac portion of the stomach, act forcibly upon the heart by increasing the force and frequency of its pulsations, or destroying the regularity of its actions. The brain may become affected from the well known sympathies existing between

¹ Dictionnaire de Médecine et de Chirurg. Pratiques, art. Gastrite.

it and the stomach, particularly if there be any old-standing disease in that organ. The stomach, however, appears, in these forms of disease, to affect the head through the medium of the heart by quickening its pulsations, increasing their force, and thus sending the blood with greater force and frequency than is consistent with the healthy state, to the central organ of the nervous system.

All inflammatory and feverish diseases are accompanied, in a greater or less degree, by vascular irritation of the stomach; from the intimate connection this organ has with all parts of the economy, it is liable to be thrown into morbid states by any impressions made upon the constitution at large, or upon any of its parts; hence we see how prone it is to become affected during the progress of other diseases. During the progress of all diseases of whatever kind, we must ascertain the state of the stomach with reference to the remedies indicated in the cure of the particular disease in question. Thus, in diseases of the heart, where the use of foxglove is indicated, it is a matter of paramount importance to administer it only when the stomach is healthy. If that state of vascular irritation which so commonly accompanies diseases of the heart be present, and which of itself is sufficient to excite or derange the heart's action, the administration of digitalis would add to the affection of the heart by irritating the stomach. The stomach being the medium through which all remedies act, it is necessary that this organ should be in a state to receive and dispose of them properly when they are given, or the stomach will be irritated instead of the disease, which medicines are given to relieve, benefited. These remarks particularly apply to the use of irritating and stimulating diaphoretic and diuretic medicines. The state of vascular irritation, (forming the first step towards inflammatory disease,) to which I am alluding, is very commonly set up at the termination of acute diseases, during the period of convalescence, probably owing to dietetic errors at this period; it comes on during a period of weakness, and, the patient not making the progress that the practitioner expects, tonics are liberally given; but still the invalid recedes towards a perfect relapse, instead of becoming convalescent. If we enquire into the patient's state at this period, we find him labouring under all the symptoms of vascular irritation of the stomach; such as flatulence, nausea, heat and weight in the epigastrium, with capricious or defective appetite, with or without a loaded tongue, for this is commonly a very deceptive symptom. A little attention to the state of the stomach, speedily restores the patient and the cure becomes complete. It is these affections of the stomach coming on during convalescence, that frequently produce what is termed by the French "false convalescence."

The eruptive and continued fevers are ushered in commonly by shivering and sickness, and the tongue is intensely red at its point and edges. If the epigastrium be examined it is highly sensible to pressure, and is the only part of the belly where any tenderness is

experienced. This tenderness of the epigastrium, and vomiting, are dependent upon vascular irritation of the stomach, approaching the inflammatory state, and indicated by symptoms which are more intense than in other forms of the disease, from the irritation occupying the whole extent of the mucous membrane of the stomach: this is probably occasioned by the accumulation of blood in the great veins of the epigastrium during the cold stage. It is more than probable that this state of stomach, at the commencement of fever, frequently lays the foundation of the aggravated gastric and gastro-enteric diseases upon which fever depends or with which it is associated, and which sometimes of themselves occasion death.

CHAPTER II.

OF MORBID STATES OF THE STOMACH DEPENDENT UPON ANEMIA.

GREAT discharges of blood, particularly those occurring after parturition, or from abortions, occasionally produce all the symptoms of vascular irritation of the stomach; such as flatulence, fulness, tenderness in the epigastrium, with pain and weight after food. We find here the same symptoms accompanying a deficiency of blood as those which denote a superabundance of it. I shall detail a few cases of this kind, in order to give a clearer idea of the disease.

A lady, aged thirty, miscarried in the third month of her pregnancy, at which time she lost much blood. At the present time, two months after the abortion, she is labouring under the following train of symptoms:—Great pain in the epigastrium, aggravated by pressure, and accompanied by strong pulsation in this region. Fulness, pain, and distension after meals, with nausea, occasional vomiting, palpitations, and inactive bowels. A medical practitioner, supposing these symptoms were dependent upon some inflammatory affection, had ordered leeches to the stomach, which had aggravated all the symptoms. The pil. aloes, assafœt. et saponis, was ordered subsequently, to regulate the bowels, and chalybeates were freely given. Under this plan, the pain, tenderness, pulsations, vomiting and distension disappeared, and the patient recovered her usual health.

This case presents all the symptoms depending upon vascular irritation, namely, epigastric tenderness and pulsations, (which latter are, however, but rarely present, and that in highly irritable patients), vomiting, with distension after taking food; in fact, a train of symptoms accompanying laborious digestion generally, and which are dependent on vascular irritation of the stomach. Leeches here afforded no benefit, and did not, in the slightest degree, remove the symptoms. The patient, however, rapidly recovered under a nutritious diet and the use of the preparations of iron. It is evident, when we review the previous history of the patient, that the

affection was produced by loss of tone in the stomach, the consequence of her great discharges, which had produced a state of irritation similar to that resulting from congestion or inflammatory action.

A lady, aged forty, miscarried in the early months of her pregnancy; the flooding accompanying the abortion was most profuse, and she remained in a state of alarming faintness for many hours. On the second day after she began to complain of her stomach. She had constant nausea, with vomiting, acidity, and flatulence, with great tenderness in the epigastrium. She was not subject to any stomach derangement habitually. Her food occasioned great pain, and lay like a "lump of lead," in the stomach. The symptoms yielded in a few days, under the administration of the tinct. ferri muriatis.

A lady, aged forty, miscarried a fortnight before the symptoms about to be described set in; she lost a vast quantity of blood, which produced a state of great weakness and irritability. She now complains of great oppression and fulness, seated in the epigastric region; she is afraid to eat, food of any kind increasing the oppression to such an extent as to produce a feeling of impending suffocation. Slight pressure over the stomach occasions a sensation of uneasiness, which the patient describes as dreadful. Tongue moist, but coated; the pulse is one hundred and twenty, sharp and small; fits of palpitation occasionally; hurried breathing, with constant cough. Percussion and auscultation afford no evidences of disease in the lungs or heart. The stools are scanty, dark, and offensive; the urine is almost suppressed, and constitutes one of the most troublesome features of the disease. It is made in quantities of not more than four or five table-spoonfuls in the course of twenty-four hours, and this is altogether composed of a light yellow sand. This state of urine came on two or three days after the distension and epigastric uneasiness. Small doses of blue pill and aloes were given at bed-time, and in the day the patient took the tincture of the muriate of iron in a bitter infusion. The diet was to consist of porter and animal food. Three weeks from the commencement of this plan of treatment the distension and uneasiness in the region of the stomach had disappeared, the tongue was clean, the bowels regular, and the urine plentiful and clear. In a week after this report the patient was perfectly well; with the improved state of the general health, and the increase of strength, all the symptoms of irritation in the stomach had disappeared.

A lady miscarried early in her pregnancy. She was fainting and almost pulseless for two or three days. To this succeeded pain in the stomach after food, increased by pressure and accompanied by nausea, eructations, swelling of the stomach, and vomiting. She recovered rapidly under the use of the tincture of the muriate of iron.

A lady had the same train of symptoms after profuse menstruation. She recovered from using the same medicines.

OBSERVATIONS UPON THE PRECEDING CASES.

The stomach, like all other organs, requires a due supply of blood to keep it in a healthy state; and if it be deprived of this, it, like all other organs, is thrown into states of disease which, in their characters, strictly resemble those which result from excess of blood, yet the two diseases require directly opposite modes of treatment. "It is a law in pathology that, in every organ, the diminution of the quantity of blood which it should contain in a healthy state, produces functional disturbances, as well as the presence of an excessive quantity of blood; and what is more, in both cases these functional disturbances are precisely similar."¹ In the cases which I have detailed, we observe the loss of blood producing symptoms of stomach derangement perfectly analogous to those which depend upon excess of blood, or upon inflammation; if we analyse the symptoms they are the same. The subject of the third case in particular exhibits, in the most marked degree, all the symptoms attendant upon the incipient stages of inflammatory disease of the stomach. The pain after food, tenderness in the epigastrium on pressure, vomiting, scanty urine, are what commonly denote an inflammatory state of the mucous membrane of the stomach. "We have often seen," says Andral, "individuals who seem almost destitute of blood, who digested with pain to themselves, and some even rejected the little food they put into their stomach. After great discharges of blood, digestion sometimes remains so laborious that the stomach is unable to repair its losses. The stomach here suffers with the economy at large, and the derangement in its functions is dependent upon constitutional causes; but the peculiarity of its functions, being the medium through which strength is repaired, and its ultimate connection with all parts of the system, render it more likely to be disturbed in its function, by causes affecting the economy at large, than any other organ. Dr. Graves has recognised this form of stomach disease depending upon constitutional causes, when he says that "it is sometimes produced by debility of the vital powers of the stomach and intestines, affected by causes which act on the whole organisation."²

¹ Andral, Clinique Médicale, Spillan's translation, p. 91

² Clinical Lectures in the London Medical and Surgical Journal, vol. vii. p. 642.

CHAPTER III.

GENERAL REVIEW OF THE SYMPTOMS AND SYMPATHIES DEPENDENT ON VASCULAR IRRITATION OF THE STOMACH.

THE inflammatory nature of one form of indigestion, has been admitted by many writers, but the affection has never, to my knowledge, been clearly followed out in what appear to be its most important points, its influence upon the condition of other organs. The late Dr. Parry, of Bath, considered that dyspepsia itself consisted in a morbid fulness of the vessels of the mucous coat of the stomach, and after detailing some facts in proof of his opinion, he concludes that this excessive determination would probably bring the malady within the limits of inflammation.¹ The opinions of Broussais on this point are the same; he attributes the greater part of all forms of indigestion to chronic inflammation of the lining membrane of the stomach.² Bouillaud observes that this kind of indigestion differs but in degree from that form of irritation known by the name of gastritis, or gastro-enteritis; the inflammatory irritations of the stomach assuming a series of shades in their degrees of intensity, of which indigestion of this kind is the first and most simple, and cholera the most severe.³ Goupil⁴ Merot,⁵ and others, all admit this species of indigestion as a symptom or group of symptoms of a diseased condition of the lining membrane of the stomach, which is characterised by inflammatory action. We daily meet in society a class of persons who are neither well nor ill, complaining of want of appetite, heaviness, and loss of spirits, who are distressed, as they inform you, with constant flatulence: sometimes there is a disposition to take food of a savoury character, and the appetite may be capricious or variable; occasionally a fit of vomiting will seize them, which is attributed to some unwholesome food which has been eaten, but which in reality is owing to the irritable and diseased condition of the lining membrane of the stomach; the tongue is foul, the mouth dry, and the bowels almost constantly confined, to which latter circumstance all the evils are attributed, although this is but a symptom of the complaint—a consequence, and not a cause. These persons are, in most cases, affected with a congested or inflamed condition of the mucous membrane of the stomach. Let us examine the symptoms in detail:—

¹ Elements of Pathology and Therapeutics, by C. H. Parry, M. D., Bath, 1825. p. 165.

² Commentaires de Propositions de Pathologie, t. i., p. 277. Paris, 1829.

³ Dictionnaire de Médecine Pratique, tome x., art. Indigestion.

⁴ Exposition des Principes de la Nouvelle Doctrine Médicale. Paris, 1824.

⁵ Dissertation sur la Dyspepsie.

OF THE STATE OF THE TONGUE IN THE PRIMARY FORMS OF
VASCULAR IRRITATION OF THE STOMACH.

In inflammatory irritation of the stomach, characterised by symptoms of indigestion, the state of the tongue is very variable, and bears no strict relation to the degree of disease or irritation existing in the gastric mucous surfaces. The most common and uniform state is a contracted tongue, of a dry appearance, coated in the centre, and vividly red at its point and edges; the papillæ are developed, and of a more vivid colour than the red surface on which they are placed. This condition commonly coincides with the ordinary and more common symptoms of distension and weight in the epigastrium, nausea and vomiting. Another condition occurs where the coating of the tongue spreads over its whole surface, through which the papillæ appear intensely red and vivid; the coating extends to the very edge of the tongue, and there is merely a red line at the point and edges. Generally with this state the sensibility is more developed; we find despondency, languor, and faintness, with indescribable feelings of uneasiness in the epigastrium, which are brought on and increased by pressure. A third state occurs where the tongue is red and smooth; the papillæ have almost disappeared, and there is a coating in two distinct lateral layers, one on each side of the tongue. This, in most instances, indicates a far more serious degree of disease than the other two; and though other symptoms may not be so strongly marked, still this state, though merely accompanied by the ordinary symptoms of indigestion, should excite our suspicion of the degree of complaint in the stomach being very serious. The very nature of these diseases prevents their exhibiting any marked physical symptoms; yet if the epigastric region in these conditions of tongue be carefully examined, we shall commonly find it hard and resisting, indicating a thickened or scirrhouss state of the membranes entering into the composition of the stomach. I have now a gentleman under my care with this state of tongue, who is forty-five years of age. He has had symptoms of indigestion, with vomiting of food, for twenty-five years, doubtless depending upon chronic gastritis. On examining the epigastrium; there is a distinct and almost defined uneven hardness, which is probably a thickened state of the coats of the stomach: he has now daily vomiting and progressive emaciation, which hardly offers the hope of recovery. I attended another person, for two years, with this state of tongue, who gained but temporary relief from any mode of treatment adopted. He died at the end of this time, and on examination the coats of the stomach were found much thickened, its mucous coat uniformly and intensely injected, with the liver slightly enlarged.

Notwithstanding what I have said of the occasional coincidence of a certain state of tongue with a fixed morbid condition of the stomach, still the state of the tongue, taken as an isolated symptom,

will afford no certain or even probable data on which to act in relation to the pathologic state of the gastric mucous surface. The results of my own observations are corroborated by those of Louis¹ and Andral;² and although the researches of these physicians chiefly refer to the relations existing between the state of the tongue and stomach in fever, still, as Andral justly remarks, the same discrepancy exists between the states of these organs in other diseases. In the earlier stages of inflammatory indigestion there is every variety of tongue, and a clean and moist state of this organ may be found where the symptoms of gastric irritation are very urgent.

A lady, eighteen years of age, was brought to me, suffering from symptoms of inflammatory irritation of the stomach; she had been irregular in her menstruation for some time. There was tenderness and heat in the epigastrium, with corresponding pains in the back and left shoulder; she had constant nausea, with daily vomiting of food, and a full hard pulse, at one hundred. With this state the tongue was pale, broad, and moist.³

Occasionally a state of inflammation in the tongue itself coincides with the symptoms of which we have been speaking. Thus, we occasionally see an intensely red tongue, with aphthous spots, which is a purely local disease, and certainly not indicative or symptomatic of any gastric disturbance with which it may be associated. I have a gentleman now under my care who is in this state. The twenty-ninth and thirtieth observations of Louis⁴ are also cases of a similar character.

OF THE STATE OF THE EPIGASTRIC AND HYPOCHONDRIAC REGIONS.

It is rare not to find, on careful examination of the regions covering the spleen, stomach, and liver, some physical signs of the commencement of inflammatory irritation of the stomach or the organs strictly dependent on it, as the liver and spleen. These symptoms are chiefly fixed pain, fulness, heat, and distinct tumefaction. Fixed pain may occur in several situations; on the left of the sternum, deep in the left hypochondrium, in the epigastrium, or in the right hypochondrium. The several seats of pain are generally indicative of the seat of complaint, whether it be in the cardiac portion of the stomach, in the greater curvature, or in the pylorus. The state of sensibility in the centre of the epigastrium, which

¹ De la Gastro-Entérite, &c., tome ii., p. 64. Paris, 1829.

² Clinique Médicale, by Spillan, part iv.

³ It should be well observed that in the same manner as redness of the tongue is not necessarily connected with gastric irritation, so whiteness of the tongue does not always exclude the existence of this irritation. It is for other symptoms to disclose this; we may then estimate their importance, and calculate how far the existence of this irritation may modify the treatment.—Andral, p. 745, part iv.

⁴ Op. cit., tome ii., pp. 66 and 77.

corresponds to the situation of the great nervous ganglia of the abdomen, is extremely deceptive, since most persons are sensible to moderate pressure in this situation. Fulness in the epigastrium and left hypochondrium is commonly attendant on the primary stages of disease; in the latter periods, when the coats of the stomach become thickened, this disappears, and is replaced by a resisting hardness and dull percussion. Fulness and distension sometimes run to so distressing an extent that the throat feels filled with flatus, and the stomach and bowels are distended to suffocation. If much gas be evolved during digestion, the sound is clear, when these regions are examined by percussion, and the extent of this clearness is very variable. I have noticed it, as in the subject of Case VI.,¹ extending below the umbilicus; after death the inflamed and dilated stomach was found occupying nearly the whole of the abdomen.* Percussion is generally clear in the hypochondriac and epigastric regions in the earlier stages of inflammatory disease of the stomach, unless this organ be distended by aliment. The temperature is always elevated, particularly in the centre of the epigastrium. After fits of repletion in persons accustomed to live well, and who habitually carry about with them the symptoms of chronic gastritis, there is commonly distinct tumefaction in the left hypochondrium, which appears to be dependent on a congested state of the spleen. I have often found the spleen much enlarged and united by strong adhesions to the stomach, after death from chronic gastritis: the subject of Case I.² affords a remarkable example of this pathologic state.³ Nausea is almost an invariable attendant upon inflammatory indigestion; it may occur at various periods after taking food, immediately, or at any time during the first two or three hours; it is sometimes the first indication of complaint, and, coupled with vomiting, often continues for years without any other marked symptom attracting the attention of the patient. These states may co-exist with pain, or the latter symptom may be entirely absent; even uneasiness, or tenderness about the epigastrium, or hypochondria, may be entirely wanting, and no indications of disease present, except nausea and vomiting. I have often seen these symptoms resist every attempt at cure, except leeches to the epigastrium.

Constipation most commonly is present, but there are states of incipient and confirmed inflammatory disease of the stomach in which the bowels are either regular or inclined to relaxation. Occasionally there are alternate states of constipation and diarrhoea. In the latter stages of the disease the latter symptom is commonly present, from an extension of disease to the mucous surfaces of the small and large intestines.

¹ See Case VI. in the chapter on the influence of the stomach upon the heart.

² See Case I. in the chapter on the influence of the stomach upon the liver.

³ See Broussais, *Cours de Pathologie, &c.*, tome ii., p. 76.

Pulsations and tremulous motions in the epigastrium are commonly attendant on incipient gastritis. They are sometimes evanescent, coming on for a few minutes or an hour, and then ceasing; at other times they are more permanent, constantly present during the whole continuance of the disease. They are sometimes only evident to the patient, who will complain of beatings in this situation which no manual tact can discover, but, in many instances, sensible not only to the hand but to the eye. These symptoms are generally attended by others which indicate a state of exalted sensibility. I have most frequently observed them where the disease was accompanied by great anxiety and despondency; in these instances the epigastrium has always been hot and tender, pressure upon it not occasioning so much pain as an undescribable feeling of wretchedness and uneasiness in the patient, which is commonly by him termed awful. In most cases they have been cured by antiphlogistic treatment.

OF THE STATE OF THE ORGANS OF RESPIRATION.

No system is more commonly affected from inflammatory disease in the stomach than the organs of respiration. The strict union of the stomach with the diaphragm, the connection of this with the pleura, and the latter with the lungs, and the strict nervous union by the branches of the par vagum, render the sympathies between the organs of respiration and the stomach exceedingly marked and close. Several symptoms of disease in the stomach are to be found in the organs of respiration. The first is a short dry cough, which has been denominated, by the French, *toux gastrique*; sometimes this is the only symptom, but it may be accompanied by expectoration of frothy, bloody, heavy, discoloured mucus, accompanied by pains in the sternum, epigastrium, hypochondria, or some points of the thoracic parieties.

I have seen acute pains, resembling pleurisy, supervene upon this gastric disease, and evidently produced by it; and it is a fact, of which I daily acquire more conviction, that many persons ultimately perish from chronic bronchitis, which is produced by chronic gastritis, and of which the first symptom is a short dry cough. The state of the case is rendered commonly much worse by the stimulating expectorants which are exhibited to relieve the pectoral disease. Accelerated respiration, with or without cough, is another symptom in the organs of respiration depending upon disease of the stomach. This very commonly approaches the character of pneumonia, in the aspect the breathing assumes, when no disease of the lung is present; and if no other use were ever to be made of the stethoscope, its value in ascertaining the state of the lung when the respiration is hurried or quickened from causes not affecting the integrity of the lung or its membranes, but depending upon other causes, would entitle it to be ranked among our most important means of diagnosis. In children, hurried breathing is sometimes

the most marked symptom of gastritis; occasional sickness, with cries and the accelerated respiration, are the chief marks of the disease. In these cases we are almost sure to wander into error, unless guided by the stethoscope, the more marked pulmonary symptoms completely masking the gastric disease which produces and keeps them up. The influence of disease of the stomach upon the organs of respiration has attracted the attention of Stoll,¹ Baillou,² Broussais,³ and Dr. Philip:⁴ by some other physicians, who are not such good pathologists as those just mentioned, these pulmonary affections have been treated as chimeras. I am convinced, from long and close attention to this class of diseases, that the stomach is a most common source of pulmonary disease.

OF THE PULSE AND HEART.

An inflammatory condition of the mucous membrane of the stomach exerts a most marked influence over the heart and arteries, independent of the mere increase in frequency and force of pulsation which is characteristic of all inflammatory conditions, whether acute or chronic. The state of the susceptibility of the nervous system varies much; and hence we find that whilst the heart is uninfluenced in the regularity of its actions, in many instances, in others, fits of palpitation are present which threaten suffocation. The heart may be affected by irritation in the stomach in many ways; by mere increased impulse, by occasional intermissions of its pulsations, or by irregular and tumultuous motions. In some instances, an actual physical sign of disease may be present, and after death the heart be found perfectly healthy. Cruveilhier has recorded a case of this nature,⁵ where the action of the heart and the morbid sound it emitted were dependent upon stomach disease. I have recorded another, which will be found in a subsequent part of this volume. The pulse is also liable to occasional variations, which are sometimes independent of the action of the heart. These symptoms are manifested in a double or triple motion of the artery to each contraction of the ventricle. Many cases of this kind will be found in the chapters on the influence of the stomach upon the heart. Whilst the symptoms which mark the existence of disease in the stomach are found principally, in some instances, marked in the heart, so are the symptoms of diseased heart sometimes principally manifest in the derangement of the functions of the stomach. I have recorded one or two cases where the only symptoms of diseased heart were pain and tenderness in the epigastrium, nausea, distension, and weight after eating, and occasional vomiting.

¹ Médecine Pratique.

² Opera Omnia.

³ Histoire des Phlegmasies Chroniques.

⁴ Treatise on Indigestion.

⁵ Anatomie Pathologique.

Broussais¹ is of opinion that the complaint in the stomach is generally confined to its cardiac portion when the sympathies of the heart are so marked ; at least affections of this part act more easily upon the heart than when disease is seated in other portions of this viscus.

OF SYMPTOMS PRESENTED BY THE BRAIN AND SENSES.

These are of many kinds, and are manifested in the brain by stupor, giddiness, and confusion of thought. In some instances, a great degree of mental excitement is present, in others as much despondency. These states, however, depend very much upon the natural constitution of the nervous system, and its degree of susceptibility to impression. In a great number of instances there is little affection of the head, and this is then confined to a constant headache, seated in the temples and forehead. Horrible dreams of a peculiarly vivid and distinct character, are commonly present. The countenance is sometimes puffed or bloated, and the patient has a sense of not being able to collect his ideas with judgment or certainty. The states of excitement in the brain sometimes approach complete delirium, and occasionally terminate in lunacy or mania. Bordeu,² Pinel,³ Prost,⁴ Richond,⁵ and Broussais,⁶ dwell, with reason, upon the states of the head which depend upon, or are produced by, chronic gastritis, or by irritation in the stomach. In reference to the senses, the symptoms most commonly observed are either a diminution in the acuteness of their accustomed degree of perception, or an exalted and depraved exercise of this power. We observe in the ear dulness, approaching to deafness, or an acute perception, which magnifies mere whispers into loud sounds. In the functions of the eye we find dimness or cloudiness of vision, or hallucinations, which vary from the simple appearance of a few black specks floating in the air, to the fancied presence of one or more objects, whether of animals or men. These cases do not commonly occur, and chiefly are owing to morbid states of the sensibility of the organs in which they are met with, called into action by the same state of morbid sensibility in the gastric nerves ; but several cases will be found in subsequent pages, where these depraved sensations were clearly the result of an inflammatory process.

OF LOCAL PAINS.

The pains which are symptomatic of inflammatory diseases of the stomach are not always confined to the epigastric region ; pains

¹ Cours de Pathologie et Therapeutique Générales.

² Œuvres Complètes, par Richerand.

³ Nosographie Philosophique.

⁴ Médecine Eclairée, par l'Observation et l'Ouverture des Corps.

⁵ De l'Influence de l'Estomac sur la Production de l'Apoplexie.

⁶ Op. cit.

in parts of the thoracic or abdominal parietes may co-exist with pain or uneasiness in the epigastrium, or this may be entirely absent. This depends altogether upon the situation in which the disease in the stomach exists, whether in the cardia, in the curvatures or in the pylorus. Pain in the centre of the sternum, with soreness of the skin in this situation, and absence of uneasiness in the epigastrium, is a very common symptom. We also find these pains on either side of the sternum, in its lower half, in the mammae, in both shoulders, under the scapulæ, in the centre of the back, and in the throat, with difficulty of deglutition. Shooting pains are felt also, in certain cases, on almost all points of the lower parts of the chest. These pains may resemble pleurisy or pneumonia, and I have frequently seen persons misled by them; here the stethoscope, and a careful analysis of the conditions of the various organs of the chest and abdomen, alone can guide us.¹ We have these pains existing without accelerated or hurried breathing or cough, and when this is the case we may generally conclude that they are not connected with any pulmonary complaint. They may, however, co-exist with these symptoms and still be gastric. Here the stethoscope is our only safeguard.

CHAPTER IV.

ON CONFIRMED INFLAMMATORY AFFECTIONS OF THE STOMACH.

The passage of disease from the mere hyperemic state to the inflammatory is very easy, and the shades which separate them are very faint; in fact, the symptoms which accompany the first state are sometimes more marked than those which are proper to the second. In the hyperemic state we have sometimes symptoms of great intensity accompanying digestion, whilst in the confirmed inflammatory condition there is occasionally little more symptom of complaint than obstinate constipation, with dull pain in the epigastrium, hardly perceived till the patient's attention is directed to it. These symptoms, co-existing with an anxious cast of countenance, slight emaciation, low spirits, and slight flatulence after food, are then all that denote complaint.

¹ Il faut éviter de rapporter au poumon les douleurs lancinantes, et pungitives qui, partant des papilles nerveuses de l'estomac rétréci, et remonté sous la voûte du diaphragm, pourraient aller rétenter aux environs du mamelon.—F. J. V. Broussais, *Histoire des Phlegmasies Chroniques*, tome iii., p. 45. Paris, 1829.

OF INFLAMMATORY AFFECTIONS OF THE STOMACH ACCCOMPANIED
BY A PECULIAR CONDITION OF THE TONGUE.

Many of our best pathologists, among whom are Louis and Andral, are of opinion that there is no direct relation existing between the state of the tongue and the state of the stomach in disease ; that is, that the former does not afford, as it has been supposed to do, any certain evidence of the condition of the latter. Sometimes the tongue is clean, and the symptoms of disease in the stomach of an aggravated character, and strongly marked ; at other times we find the tongue coated, or covered with aphthous crusts, and intensely red and smooth in the intervals of these crusts. This may exist without any affection of the stomach. We again find that this state of the tongue sometimes exists with pure chronic gastritis, but that the state of the tongue is not altogether indicative of the disease in the stomach, but results in a great measure, from local disease in the tongue itself. Thus, we may have a clean tongue with a diseased stomach, a diseased tongue with a healthy stomach, or disease co-existing in both organs, but independent of each other.

CASE 1.—Aphthous and ulcerated tongue co-existing with symptoms of chronic gastritis.

A gentleman, of middle age, had been out of health for some time, yet no very marked symptom of complaint was present to which his attention was directed ; he complained merely of loss of spirits, had bad nights, and occasionally a little nausea, although the appetite was good. After the continuance of these symptoms for some months, during which time the countenance acquired a sallow tinge, the tongue became dry, red, and foul, and covered with aphthous crusts ; on the borders of the tongue the white incrustations dropped off, and left small ulcerations underneath. In the intervals the tongue was vividly red and dry, and the surface thickly loaded with a brown fur. With this state of tongue there existed the most obstinate constipation ; the bowels were never relieved without medicine, and when suffered to pass for three or four days, without discharging their contents, sickness and vomiting succeeded. The patient suffered from great languor and mental depression ; the pulse was feeble, creeping and slow. On examining the epigastrium we found there existed considerable uneasiness upon slight pressure, occasionally a shooting pain was felt, and the patient was tormented with flatulence. The emaciation, although the disease had continued for many months, was hardly perceptible ; but the limbs had lost their usual firmness, and were become soft. The aphthous state of the mouth was always increased by constipation ; if the bowels were kept free the state of the tongue was always amended, but if constipation was suffered to continue nausea came on, and

the tongue became encrusted and dry, the gums spongy, and covered with spots as well as the tongue.

It is not often that we observe this aphthous state of the tongue and gums coinciding with chronic gastritis; for, in the case under consideration, it is evident that the state of the tongue and gums was dependent upon that of the stomach; on the removal of the constipation, and keeping the patient for a week or two upon farinaceous food, the aphthæ would disappear, the tongue become moist, and lose its vividly red and smooth appearance, whilst a recourse again to stimulating food, and neglecting the state of the bowels, would as constantly bring the tongue to its primitive morbid condition, and the symptoms of disease in the stomach would return at the same time. It must not be forgotten that this state of tongue and gums may be purely local, and unconnected with any stomach disease; depending upon an inflammatory state of these organs themselves, independent of disease in any other. Again, we see it produced by gastritis, as in the present instance, and, under these forms, is generally accompanied by a depressed state of the vital powers generally. It is commonly a very serious symptom, but I have seen many cases, where, under a judicious treatment, the aphthous crusts, have fallen off, the tongue has become moist, and the gums have lost their spongy appearance. If the aphthous state be treated, under these circumstances, as a purely local disease, and the complication of gastritis with it be overlooked, it is extremely probable the patient will die, since under some circumstances, chronic inflammation of the stomach is a disease of so insidious and obscure a character, even when it has occasionally proceeded to a state of disorganisation of the mucous membrane, that a superficial observer may pass it over. Louis has recorded two cases, in his work, *De la Gastro-Entérite, &c.*, exhibiting inflamed and ulcerated states of the tongue, in fever independent of any gastric affection. These states may doubtless occur, but I am anxious to impress upon the reader the fact, that these peculiar states of tongue may be present with inflammatory conditions of the stomach, of which they are commonly the only strongly marked symptoms. A peculiar sensibility of the tongue is sometimes indicative of gastric disease. I know a lady, in whom attacks of gastric inflammation are manifested by a peculiarly sensible and painful state of the tongue, accompanied by an itching, which is extremely distressing. In a second lady, severe attacks of vomiting, attended with all the phenomena of inflammatory action, accelerated pulse, heat of skin, and tenderness of the epigastrium, were preceded and accompanied by an exalted state of sensibility in the tongue and a constant sensation of pricking. In both these latter cases the tongue was moist and clean.

In all these instances we find the same state of disease manifested by symptoms which are of various kinds, even in the same organ, proving that no system of nosology can give proper ideas of disease. So different are the susceptibilities of different organs, that we find

the evidences of chronic gastritis sometimes in one organ, sometimes in another; occasionally they are marked by depraved sensations of various kinds, and sometimes entirely unaccompanied by pain. Not only are the symptoms of stomach disease sometimes found in one organ, and sometimes in another, but the kind of morbid condition in the same organ is extremely variable, being sometimes manifested by depraved sensations, and again by various forms of inflammatory action.

A long and close attention to the condition of the tongue, as affording any certain data of the kind or degree of disease existing in the stomach, has convinced me that there is no reliance whatever to be placed upon it, considered as an isolated symptom. From the examination of a number of cases of disease of the stomach, accompanied, as all inflammatory affections are, with febrile action of a more or less intense character I must concur in the deductions made by Louis on the state of this organ in febrile and inflammatory affections generally; that the tongue, like all other organs, during febrile or inflammatory states of the constitution, is liable to attacks of inflammation, which give to it its various morbid appearances.¹ I have shown, in many parts of this work, the truth of another point, (first established by Louis,) that the stomach, during general states of feverish disturbance, is liable to become inflamed, but not necessarily so: the same remark applies to the tongue.

CASE 2.—A lady, aged thirty-six, had symptoms of gastric disease for two years, during which time the tongue was never red, but always pale, moist, and very slightly coated. Death at the end of this period, from ulceration of the lining membrane of the heart. Pyloric portion of the stomach intensely red, covered with patches of red points; cardiac portion studded with small red clusters of points, in the centre of which the mucous membrane was softened.

CASE 3.—A youth, aged twenty, had symptoms of chronic gastritis for many months. The tongue was pale, moist, and slightly coated in the centre. Death from acute peritonitis. The cardiac portion of the stomach was inflamed and softened, for a space as large as the open hand.

CASE 4.—“A girl, aged twenty, died from typhus fever. The stomach was inflamed and softened, but the tongue moist, contracted, and pale.”²

In many of the cases detailed by Louis, the tongue did not differ from its healthy state, whilst the mucous membrane of the stomach was inflamed or softened.

In some of the cases collected by Andral³ of the terminations of

¹ La dernière conséquence des faits rapportés, c'est, qu'on ne doit examiner la langue que pour elle-même, et non pour connaître l'état de la membrane muqueuse de l'estomac.—Louis, Op. cit. tome ii., p. 106.

² Louis, Observation the Fifth.

³ Clinique Médicale.

chronic gastritis in scirrhus, or thickening of the coats of the stomach, the tongue did not deviate from its naturally healthy state.

If we carry our observations on the state of the tongue to cases of the milder forms of stomach disease, we shall notice such affections, of great intensity, where the tongue presents little or no deviation from the healthy state. I have now under my care two patients who have been the subjects of chronic diseases of the stomach for several years, in whom emaciation has slowly progressed, who have defined tumours in the epigastrium, but in both of whom there is not the slightest morbid condition of the tongue.

We have a second series of cases, in which morbid states of the tongue, of an inflammatory kind, are met with; and on examination after death the stomach is found free from all appreciable disease.

CASE 5.—A gentleman, aged forty, had symptoms of gastric disease for many years, which consisted in daily vomiting of food both solid and fluid, in an intensely acid state; he had considerable pain and tenderness in the epigastrium, with a tongue vividly red, shining and smooth. He subsequently died of disease of the lung, the gastric symptoms continuing even, under an aggravated form up to the period of dissolution. The stomach was free, in all points, from the least appearance of disease.

"We have observed some persons," says Andral, "who for several months in succession, presented such a state of tongue: they had all the other signs characteristic of chronic gastritis. But this appearance of the tongue alone should not suffice to cause us to admit its existence: from time to time persons are met with who, without experiencing any disturbance in their digestive functions, have, like the preceding, a red and smooth tongue."¹

The third series of facts are those in which an inflammatory state of the tongue co-exists with the same disease in the stomach.

CASE 6.—A lady, aged 53, had suffered from symptoms of chronic gastritis for twenty-five years. She had constantly a smooth dry tongue of a deep red colour. On examination after death, which took place from prolonged gastric disease, the cardiac portion of the stomach was intensely red, presenting one uniform surface of inflammation, covered with a bloody mucus.

CASE 7.—A lady, aged forty, was subject to pain after food, with daily vomiting, for three years. The tongue was of a smooth, shining red, perfectly dry, the redness most marked at the point and edges. On examination after death, the whole mucous surface of the stomach presented a pink appearance; in some places there were patches of a deep red colour, consisting entirely of minute blood-vessels.

These series of facts show how uncertain are the data afforded by the state of the tongue in confirmed organic disease of the stomach. In the earlier stages of disease, in which there is mere

¹ Op. cit.

fulness of blood, or slight irritation unconnected with confirmed inflammatory disease or its terminations, the state of tongue is as variable as in the circumstances just mentioned.

One condition of the tongue may be here alluded to, which is almost invariably an index of gastric irritation, of an inflammatory kind. It is when this organ, not materially changed in other circumstances, presents, at the point and edges, a number of vividly red points. These resemble grains of vermillion scattered over the tongue. They appear to be the papillæ enlarged, and supplied with an increased quantity of blood. When there is any coating upon the tongue, the brilliant papillæ are seen uncovered by it. I believe this condition is seldom found unaccompanied by vascular irritation of the stomach. When it is met with in persons who do not offer any symptoms of stomach derangement at the time we may always conclude that there is a strong predisposition to it, and that a very slight cause is capable of producing gastric disturbance.

OF THE SYMPTOMS REFERABLE MORE PARTICULARLY TO THE STOMACH ITSELF.

The evidences of diseases, in all organs, are principally to be sought for in the derangements of those functions which are proper to them in a state of health, and the degree of constitutional disturbance which accompanies such derangements. In inflammatory diseases of the stomach and their terminations, the first are chiefly loss of appetite and an impaired state of the function of digestion, remarked in pain, distension, anomalous nervous symptoms, nausea, and vomiting. In many cases of chronic gastritis there is little alteration in the appetite, and the patients fancy the degree of disease cannot be very great whilst the appetite continues so good. If the whole surface, or a greater portion of the surface, of the mucous membrane be affected, there is total loss of appetite ; but if the disease be partial, as it most commonly is, and the inflammation confined to patches of the mucous membrane, the appetite experiences but little alteration. Although the appetite continue good, the patient undergoes various inconveniences from attempting to satisfy it; he is tormented with flatulence during digestion, feeling, after having taken but a small portion of food, as though he had eaten a full meal, from the degree of distension which it produces. At other times this distension mounts to the throat, and the sufferer is annoyed by a sense of choking amounting to suffocation. At one time, a burning heat follows a meal, at others, acute, lancinating pain, the seat of which is variable; and again, a degree of uneasiness is produced, which is not appeased till the whole of the food taken has been rejected. At other periods, indescribable feelings of sinking and depression are experienced in the neighbourhood of the stomach. When the epigastrium is pressed these feelings are sometimes brought on or aggravated. They are sometimes relieved for a short

time by taking food; at other times they are immediately aggravated by it.

A lady under my care, with chronic gastritis, had a sense of some impending evil about to befall her, with sinking and faintness every time the gastric symptoms became aggravated.

The evils experienced on taking food during the continuance of chronic gastritis, are variable.

A gentleman, aged thirty-eight, had laboured under chronic gastritis for three months. He had vomiting of food daily, with great acidity, and internal heat "as hot as a hot iron," to use his own expression.

A second gentleman had laboured under the symptoms of chronic gastritis for many months. He had very acute pains after taking food, which were not appeased till the food was rejected. The pain was seated in the centre of the epigastrium.

The seat of pain occurring in chronic gastritis, is not always the same. It may be felt in the throat, in the centre of the sternum, on various points of the surface of the chest, under the prominences of the ribs, on either side, or in the dorsal portion of the spine, or under the scapulæ.

The most common seat of pain is the centre of the epigastrium itself; varying from mere uneasiness to a dull constant aching, increased to acute lancinating pain on the aggravation of the gastric symptoms, or from irritating or stimulating diet.

In a second form, the pain is referred to the centre of the sternum,¹ and is supposed by many to indicate some affection of the chest, especially when accompanied, as it sometimes is, by cough or quickened breathing.

In some instances the pain is felt in the throat, and when swallowing, accompanied at the same time with uneasiness in the region of the stomach, shooting to the centre of the back or under the left shoulder. These symptoms, in the opinion of Broussais, indicate the localisation of the disease in the cardiac portion of the stomach.

A lady, aged twenty-six, had suffered from daily vomiting of food for two years. Great distension, acidity, and pain, followed each meal. The more prominent features of her complaint, however, consisted in pain in the throat when she swallowed, and pain also in the centre of the back, between the scapulae. She had also considerable tenderness in the epigastrium, aggravated to a great degree by pressure. The disease was removed altogether, in a short time, by leeches, and blisters applied to the epigastrium and dorsal portion of the spine, with some attention to diet, and the use of internal remedies mentioned in the chapter on treatment.

The pains which accompany inflammatory conditions of the

¹ On en voit qui éprouvent des douleurs fortes dans toute le thorax ou au moins dans sa moitié inférieure. * * La sensation est autant rapportée à la peau du thorax qu'à l'estomac.—Broussais, Cours de Pathologie, tome ii., p. 69.

stomach are not necessarily felt in the stomach itself, neither is pain a pathognomonic symptom of the disease. "Chronic inflammation of the stomach is not necessarily accompanied with pain in the region of the suffering organ."¹ We commonly find it seated on various points of the upper part of the abdomen; sometimes evidenced by a sense of constriction, or binding; at other times by stinging, lancinating pains felt as low as the umbilicus, in the belly, or in the chest, upwards as far as the mammae, but this more particularly on the left side.

CASE 8.—A gentleman, suffering from all the symptoms of chronic gastritis, had acute, lancinating pains, radiating from the centre of the epigastrium over the left side of the chest as high as the left mamma. These were all the local pains he suffered.

CASE 9.—A second gentleman, whose gastric disease was evidently produced by an affection of the heart, had a sensation of binding, as though a string had been tied tightly round his waist, after taking a moderate meal.

It is very common to find patients complaining of pain, sometimes constant and fixed, at other times accompanying or following a meal, deep under the ribs, in the left hypochondrium; with this pain co-exist all the other more marked symptoms of chronic gastritis, though tenderness in the epigastrium is absent. The pain which is seated under the ribs in the left hypochondrium, is dependent upon disease localised in the greater curvature of the stomach. It is very commonly met with in free livers, and is sometimes accompanied with a congested state of the spleen, so great that a distinct tumefaction is discoverable. In many cases of examination after death from chronic gastritis, the spleen is found much enlarged, and united, by strong adhesions, to the stomach. I have reported one or two examples of it. "Ce gastrite se décèle par une douleur profonde dans la région de la rate sous l'hypochondre gauche. La douleur qui l'accompagne est fort incommode pendant plusieurs heures, et plus violente lorsque les alimens commencent d'être dans un état de coction avancée."²

The pain which is felt in the centre of the epigastrium is the most common of all, though by no means pathognomonic of a diseased condition of the mucous coat of the stomach.³ It is the most common for two reasons: 1st. Because the pyloric portion of the stomach, here situated, is generally the most frequent seat of inflammatory disease; and 2dly. Owing to the exalted sensibility of the great nervous centres of the epigastrium, which generally accompanies an inflamed state of the mucous coat of this organ. We have sympathetic pains accompanying inflammation of the mucous coat of the pyloric portion, shooting into the region of the liver,

¹ Andral, *Op. cit.*

² Broussais, *Cours de Pathologie*, tome ii., p. 76.

³ La sensibilité est variable suivant les individus; les uns en éprouvent une très vive à la région de l'épigastre, et les autres n'en éprouvent aucune. Broussais, *Op. cit.*

under the right scapula, and to different parts of the right side of the chest. These pains are very likely to mislead, and to make us suspect a diseased condition of the liver, if we are not very careful in our examination of the state of the patient.

One of the most common symptoms, attendant on an inflamed condition of the stomach, is distension, fulness, or flatulence, accompanying or immediately succeeding a meal. It is very common to meet with patients in whom the appetite is good, but who are totally unable to satisfy it, from the degree of distension and oppression which are consequent upon eating. Sometimes the fulness is felt in the throat, at others in the region of the stomach itself; patients, to relieve themselves from the state of distress and inconvenience under which they labour, are obliged to slacken their clothing, unbutton their waistcoats, or unlace their stays. It is not after a full or over-hearty meal that these symptoms come on, but occasionally after having taken the smallest quantity of food. This state of distension is particularly marked and frequent where the gastric disease is consequent upon an affection of the heart. I have two gentlemen now under my care, in whom this was the first and chief symptom attracting their attention.

Although chronic vomiting may depend upon various pathologic states of the stomach, as also upon diseases in other organs, without any affection of the stomach itself, still it is sometimes the only symptom indicative of an inflamed condition of this part. I have frequently had patients brought to me, in whom the principal complaint was that they could not retain their food. They have had with this other symptoms of partial gastritis, as a dry, coated tongue, heat and tenderness in the epigastrium, headache, and thirst. Many cases had been present for three, six, and more months, and some had lasted for two or three years. In the opinion of Andral, vomiting, as a symptom of an inflamed condition of the mucous membrane of the stomach or its terminations, occurs principally in two states; where a chronic state assumes the acute type, or where an obstacle is offered to the free passage of the food, either in its entrance to, or exit from, the stomach. It is certainly not attendant on all cases of gastritis, but occurs in many, both in its primary stages, where the mucous membrane is turgid with blood and the general sensibility exalted, and in its terminations also, where the mucous membrane presents alterations either of colour or consistency. In the earlier stages of inflammatory diseases of the stomach vomiting is a much more common symptom than it is in the more confirmed and chronic condition.

A lady, aged eighteen, was brought to me, who had daily vomited all her meals for six months; her stomach had absolutely retained nothing. She had tenderness and heat in the epigastrium, but scarcely any other symptom indicating an inflammatory condition of the stomach.

Many such examples, which are not uncommon, might be adduced. Occasionally vomiting is the only symptom present, and

takes place, without pain being produced, at an earlier or later period after meals, varying from one to six hours. At other times vomiting is accompanied by internal pain, shooting to various parts of the abdominal or thoracic parietes, according to the seat and extent of the disease.

After the more acute symptoms of inflammatory disease of the stomach have subsided, and the confirmed chronic state alone is present, vomiting is not so common; whilst, after the terminations of such disease in change of structure, we commonly find this symptom reappear with great intensity.¹ Vomiting, as a symptom of chronic gastritis, is more common at the commencement and at the termination of disease. We very commonly see intense vomiting set in at the termination of chronic diseases of the stomach, where change of structure has taken place from the long continuance of insidious inflammatory action. The matters vomited may consist of blood, food, or bilious matters.

CASE 10.—A gentleman had laboured under the symptoms of chronic gastritis for two years, the prominent feature of which consisted in great pain after food, shooting to the back and over the sides of the chest; indeed, from the pain he was never entirely free. During the latter weeks of disease he vomited small quantities of blood, and suddenly a large quantity, soon after which he died.² A mass of fungoid vegetations were found in the pyloric portion of the stomach, the whole of the mucous membrane being reddened, at intervals, in patches.

In this case pain was the chief symptom present, vomiting not coming on till the latter periods of disease.

CASE 11.—A middle-aged lady had suffered, for some time, great pain after her meals; at length a vomiting set in, which was uncontrollable. No medicines afforded any relief. On examination after death the mucous membrane was found covered by several slate-coloured patches, about the size of a half-crown piece. We commonly find vomiting take place during the progress of inflammatory diseases of the stomach, where the symptoms become aggravated from errors in diet or other causes, and the affection passes to a more acute stage, in which also the nervous irritability of the stomach becomes much more exalted. This is very often met with in those cases where chronic gastritis is associated with diseases of the liver, as it so frequently is. In such instances the stomach affection is constantly assuming the acute or sub-acute type, and vomiting comes on; whilst in subsiding to the mere chronic form again this symptom ceases, although the inflammatory action still remains.

I have now under my care four patients with distinct and large

¹ Chez quelques malades les vomissements durent autant que la maladie; chez quelques autres ils n'ont lieu qu'au début, chez d'autres au contraire, qu'à la fin.—Andral, Cours de Pathologie Interne, tome i., p. 62.

² Quelque fois du sang est rejeté vers la fin de la gastrite chronique, c'est alors un signe de mort prochaine.—Andral, Op. cit., p. 62.

hepatic tumours, with which are associated all the symptoms of chronic gastritis. In these cases, although the disease may remain latent for a time, there is a constant tendency to assume the acute type, which is invariably accompanied by vomiting.

Vomiting taken as an isolated symptom, is by no means indicative of an inflamed condition of the mucous coat of the stomach; in conjunction with others, it demands great attention. In chronic gastritis, as I have said, it occurs chiefly when this is passing into the more acute forms, or when organic change exists either in the cardia or pylorus.

Vomiting of bile, food, and various discoloured secretions, may take place from the stomach, consequent upon disease in other organs, the stomach remaining healthy. These are chiefly to be ranked among lesions of the nervous influence of the stomach. It must be here remarked, however, that protracted functional derangements may terminate in organic changes, which are attributed to inflammatory action, although none of the symptoms of inflammatory action are at first in existence. In fact, those which are called functional derangements, are very commonly the first symptoms of an organic change which is, perhaps, already commencing.

The *Clinique Médicale* contains the detail of the case of a person "who, from his eighteenth to his thirty-seventh year, scarcely passed a summer without being attacked with copious vomiting of bile, and alvine evacuations of the same nature. He, for some days, felt a kind of general indisposition and fatigue : he lost appetite, the epigastrium became a little sensible to the touch, and bilious evacuations commenced ; they continued for two or three days, and then his health was restored. In all the other seasons of the year this person digested his food well, and suffered nothing from his stomach ; but such did not continue to be the case. Towards the thirty-sixth year of his age his stomach began to be permanently affected, and by degrees he presented all the symptoms of scirrhous pylorus." This is a very good example of the mode in which repeated attacks of gastritis lay the foundation for, and ultimately terminate in, organic disease. The attack, at first coming on from accidental causes, leaves a disposition in the organ to its recurrence on the application of slighter exciting causes than those which at first produced it, the mucous membrane remaining in a state to be thrown into inflammatory action from slight dietetic errors ; and hence repeated irritations of the inflammatory kind, which in the intervals leave the patient apparently free from complaint, ultimately terminate in confirmed organic change.

I have had the charge of several patients in the latter stages of gastric diseases, who have been able distinctly to trace the commencement of their complaints. These have seldom commenced before the age of twenty-five, at the periods when they had begun the habitual use of a fuller and more stimulating diet than that of the earlier periods of life. The symptoms with which they were first affected were those of simple indigestion, in its various forms

of pain or distension after food, nausea, or vomiting. These have ceased at intervals, have been relieved by various plans of treatment, but have shown a disposition to recur at longer or shorter intervals from dietetic errors or excesses, or from other causes, in more aggravated and obstinate forms than those in which they first made their appearance, and accompanied by sympathetic irritations in the head, heart, liver, or lungs, exhibited in the forms of giddiness, palpitations, jaundice, or cough.

On examining the bodies of such patients after death, what has been the condition of the organs exhibiting these symptoms during life? In the stomach, changes of colour or consistence, ulcerations or vegetations; in the brain, thickening of its membranes, effusions, increased determinations of blood; in the heart, alterations of its internal or investing membranes, or, what is more common, of its muscular structure; in the lungs, congested, or inflamed states of the bronchial mucous surfaces, or of the lungs themselves; and in the hepatic system a diseased condition of the veins or substance of the liver, alterations of colour or consistence, and various morbid states of the bile, the gall-bladder, and the excretory passages of the bile. Many of the patients in whom dyspeptic symptoms have commenced about the ages of twenty-five or thirty, have fallen victims to gastric diseases, and their complications at the ages of from forty-five to fifty-five. A number of the histories of these patients, detailed in the subsequent pages of this work, have been carefully collected from the sufferers themselves; and the pathologic changes their organs exhibited have been ascertained by my own dissections after death.

The internal pain experienced in purely inflammatory diseases of the stomach is generally obscure, unless the disease be associated with a degree of nervous excitement approaching, in some measure, the character of neuralgia. This organ is the seat of two morbid actions, which are attended by pain; each of which may be in existence without the other, or they may be associated during the progress of disease. These are vascular irritations or inflammations, and nervous irritations; when the excitement is confined to the nervous capillaries of the stomach, it is called, in medical language, erethism. The pain which attends chronic gastritis, if this exist in its simple state, without complication, is generally dull and obscure. There is generally in this disease uneasiness or weight in the stomach, which is occasionally relieved for a short time by taking food, but the pain returns, in an aggravated form, at a variable period of time after eating. Sometimes immediate pain is felt, again it is mere uneasiness at a protracted period of digestion, and produced, as patients will often inform us, by the food touching a sensitive surface, over which they can feel it passing.

CASE 12.—A gentleman, suffering from the ordinary symptoms of chronic gastritis, marked by pain and tenderness in the epigastrium and left hypochondrium, with distension, weight, flatulence, and acidity after eating, complained to me of a sense of pain or pecu-

iliar uneasiness, occurring five or six hours after a meal, when he fancied the food was passing over a surface more sensitive than the other parts of the stomach.

In this case, although the symptoms of inflammatory disease of the stomach were strongly marked, there is mere uneasiness after a meal present.

If chronic gastritis occur in patients where the nervous system is highly irritable, the character of pain occurring after taking food is sometimes very violent.

CASE 13.—Violent pain succeeding meals, apparently dependent upon chronic gastritis.

A lady, aged forty-three, had been subject to attacks of pain after food, with occasional vomiting, for fifteen years; the attacks were generally brought on by mental uneasiness. For three months preceding my first attendance upon her she had been much worse. At the time of my first visit she was much emaciated, had constant pain in the stomach, aggravated to such an extent by taking food that she was reduced to small quantities of cold gruel, and even this occasioned much pain. There was most obstinate constipation, with a dry, red tongue, and a small, rapid pulse.

The pains felt after food in this patient were very peculiar: sometimes they shot into the mammae most acutely, and resembled pleurisy; at other times she felt as though some one were scraping the surfaces of the ribs in the hypochondria. With all this there was no sign of pectoral disease, corroborating the remark of Broussais, that we must not attribute all the pains that are felt in the chest to a diseased condition of some one of its contained organs.

The pain was, in this case, not a nervous affection independent of, and merely coinciding with, the inflammatory disease, but a state of irritability strictly dependent upon, and produced by, the gastritis, since it yielded to leeches, counter-irritation, and warm aperients, and abated in the same degree as the inflammation which accompanied it. In many instances, as in the following, we shall find that this is not the case, but that the pain becomes more acute as the symptoms of inflammation are less so.

CASE 14.—Nervous affection of the stomach associated with inflammatory disease, the nervous affection remaining after the inflammation had subsided.

A gentleman came under my care in November, 1834, labouring under the usual symptoms of an inflamed condition of the mucous membrane of the stomach. He had constantly uneasy sensations in the stomach, which were considerably increased by taking food. He had occasional vomiting, distension after food, acid eructations, with heat and tenderness in the epigastrium. These symptoms yielded to antiphlogistic treatment, and all the symptoms of a diseased condition of the stomach subsided, with the exception of un-

easiness after food, which augmented, as the inflammatory affection disappeared, to violent pain. This latter symptom was aggravated by all antiphlogistic treatment, but yielded to morphia with the salts of iron.

In this instance, we observe the pain accompanying the inflammatory affection obscure, whilst the symptoms of inflammation remain; but as these subside, the pain, which was evidently of a nervous character, becomes more acute and only yields to anodyne and tonic remedies. The character of the pain, becoming worse as inflammation subsides, and the effects of the remedies employed, at once stamp it as a disease distinct from inflammation, although associated with it. The fifth, sixth, and eighth cases in my paper "On Diseases of the Stomach," in the Dublin Medical Journal, are examples of this association of neuralgic pains in the stomach, which sometimes accompany, and sometimes succeed to, inflammation. Whether these pains are the consequence of inflammatory action or not, is a difficult question to determine.

It is a common circumstance to observe, during the progress of diseases of the stomach, two distinct species of irritation in it at the same time: one the consequence of inflammation, the second depending upon an unduly excited state of the nervous system in the same organ. Sometimes the nervous symptoms are associated with the inflammatory; in other instances they succeed to them, becoming more severe as the inflammatory irritation subsides. In a third form inflammation comes on after a long continuance of the nervous affection. Barras relates two remarkable cases of this kind in his Treatise on the Nervous Affections of the Stomach and Bowels. The concurrent testimony of Louyer Villermay, Barras, and Goultier de Claubry, at once prove the existence of nervous and inflammatory irritations in the stomach at the same time.¹

CHAPTER V.

ON AFFECTIONS OF THE STOMACH CHARACTERISED BY DERANGEMENTS OF ITS SENSIBILITY.

I have shown, in the preceding chapter, that the characters of pain attendant upon inflammatory conditions of the stomach are extremely variable, being sometimes obscure, at others violent, bearing no strict relation to the character or degree of that inflam-

¹ La gastrite peut se rencontrer avec l'exaltation de la sensibilité nerveuse de l'estomac.—Barras, p. 607. Il est des circonstances où cette phlegmasie est primitive et l'exaltation nerveuse secondaire; mais la maladie sort alors de la classe des névroses pour rentrer dans celle des inflammations; c'est une gastrite compliquée de phénomènes nerveux.—Barras, Op. cit., p. 608.

mation upon which they depend, or with which they are associated. There are many diseases of the stomach which consist in a purely morbid state of the sensibility of the gastric nerves, without the association of any inflammatory action; these have been well described by Dr. James Johnson, in his work on the Morbid Sensibility of the Stomach and Bowels, and into their primary forms I consider it unnecessary to enter, referring my readers to that book for information on these points.

M. Barras has produced a work of some merit, entitled *Sur les Gastralgies et les Entréalgies*, or Nervous Diseases of the Stomach and Intestines. A careful perusal of the work will, however, show that many of the cases detailed in it were evidently inflammatory in their commencement, and only rendered purely nervous by the pernicious system of large local depletions, adopted by most of the French physicians of the physiologic school, acting upon the aphorism of Broussais, that the greater part of all indigestions, in whatever form they are exhibited, are due to a chronic inflammation of the mucous coat of the stomach. M. Barras maintains, merely in opposition to M. Broussais, that the greater part of these affections are of a nervous kind, and dependent altogether upon certain and varied states of depraved sensation in the gastric and intestinal nerves; and to these causes he refers the group of dyspeptic symptoms of pain, cramp, spasm, chronic vomiting, morbidly increased, depraved, or defective appetite, and other symptoms of this kind.

The truth, however, rests neither with M. Broussais nor M. Barras, but between the two. There are, questionless, certain and frequent forms of disease in the stomach which terminate fatally, in which no organic change can be detected in the stomach or in any other organ connected with it, and which can be referred only to a diseased condition of the nervous powers of the stomach, in which the function of chymification, or stomachal digestion, is destroyed, or so much impaired as not to be able to support life. Andral has detailed a remarkable case of this kind:—

CASE 1.—“A female aged thirty-eight, entered the hospital of La Pitié labouring under the following symptoms:—A total want of appetite, which had continued for seven or eight months; every time she took food she felt an insupportable weight in the region of the stomach, and occasionally an acute pain. From time to time she vomited some whitish mucus. Strong pressure on the epigastrium produced no painful sensation in this region. The remainder of the abdomen was soft and free from pain; the patient was habitually constipated; tongue natural; no disturbance of any other organ: she was much emaciated and very feeble. She mentioned that the appetite began to fail after having been subjected to severe mental distress.

This patient was considered, by her medical attendants, to be labouring under chronic inflammatory disease of the stomach; and from the clean state of the tongue, cancerous degeneration of its submucous cellular tissue was suspected. A seton was placed

over the epigastrium, but without effect. The patient wasted away, and died without presenting any new symptoms. On examination after death the stomach was found perfectly healthy; its nerves and tissues were in their natural condition. None of the other organs of the body presented any appreciable deviation from their usual healthy condition.

A lady, mentioned by Dr. Abercromby, had constant vomiting of food and severe pain after eating, which at length became so bad that she was unable to retain any thing upon her stomach, except fluids in very small quantities. No treatment afforded relief, except blisters to the epigastrium. She gradually wasted and died, and on examination of the body no disease could be detected, except some enlarged glands behind the stomach.

These two cases are examples of disease of the stomach attended by marked symptoms of functional derangement, but unaccompanied by any appreciable organic lesion upon which they can be said to depend. We observe no change in the colour or consistence of the stomach or its membranes; its nerves and tissues appear to be in the most perfectly natural condition: yet the food taken creates pain, is rejected by vomiting, and the patients emaciate and die. We certainly must suppose that these symptoms are owing to a complete loss of the digestive power of the stomach, depending upon causes we cannot appreciate. In some instances, we observe affections of the stomach, of this character, come on, which are dependent upon disease in other organs. Here, likewise, all the parts entering into the composition of the stomach are found healthy.

CASE 2.—A middle-aged lady was subject to occasional attacks of vomiting and pain in the epigastrium, of a very severe character, which had harassed her for several years. At times her stomach digested well, and she felt no inconvenience from eating; at others, the food taken occasioned great pain and distension, and was commonly rejected by vomiting. In these states she found great benefit from leeches and blisters to the epigastrium, and the internal administration of mild aperient and sedative remedies. After the continuance of this affection, with little variation, for many years, the patient died from an attack of acute pleuro-pneumonia. I was most anxious to have an opportunity of examining the condition of the lining membrane of the stomach, which had exhibited symptoms of disease for so long a time. On laying open this organ I was surprised to find it perfectly healthy, it was not even slightly injected; all its tissues were in the most natural state, as far as anatomy enabled us to appreciate them. The right ovary, however, was converted into a cyst, containing a large quantity of hair and a few portions of bones.

Affections of the sensibility of the stomach, or in which derangements of the sensibility are the prominent features of the disease, may be either acute or chronic, and evidenced under a vast variety of forms. Sometimes they are of long standing, and are attended,

like organic diseases generally, by progressive wasting of the body; at other times they come on suddenly, yet are purely nervous diseases, at least the local determination of blood which accompanies them is a secondary consideration. They are also accompanied by sympathetic irritations in other organs, which are of the same pathologic character as those existing in the stomach. In many instances they perfectly resemble diseases which are of an inflammatory character, yet are aggravated by a treatment exclusively antiphlogistic.

It is very common for these affections to succeed to large or repeated hemorrhages, of which I have given several examples in the second chapter of this work: here they are evidently dependent upon loss of tone in the nervous system, due to a want of its proper stimulus—a certain quantity of healthy arterial blood. In such forms they are best and most speedily cured by large doses of the preparations of iron; the carbonate of iron with the powder of calumba is then exceedingly useful. I have seen patients restored very quickly by such remedies where, in the first instance, the affection had been mistaken for an inflammatory one, and so treated.

There are other forms of disease, in which derangements of the sensibility are the prominent features, which succeed to long-continued indigestions of the inflammatory kind; the latter have yielded to antiphlogistic treatment, but the patient still continues to be harassed with most distressing sensations connected with his stomach, under the forms of pain after food, distension, nausea, vomiting, uneasy sensations and beatings in the epigastrium, with variable conditions of the bowels, and sympathetic affections of other organs; as hurried breathing and cough, palpitations, giddiness, a copious flow of thin pale urine, or one scant in quantity and loaded with amorphous deposits. Many of these affections are precisely the forms of disease which M. Barras has described, in his work, as nervous diseases of the stomach and intestines, and which have succeeded to, and have been produced by, inflammatory affections which have been treated by large losses of blood from the epigastrium. I have had many patients under my care where, in the first forms of complaint, local depletions from the region of the stomach have afforded vast relief in conjunction with other remedies; but there has arrived a period in the history of these diseases where leeches have ceased to afford relief, and where, in fact, they have rather aggravated than relieved the affection. Sometimes the nervous affections, which succeed to the inflammatory, present nearly the same symptoms as those of inflammation; and it is merely from a discovery that the use of the same remedies ceases to afford relief that we are made aware that the character of the disease is changed. Again, the nervous affection is characterised by new and other symptoms than those which were present in the inflammatory form. Occasionally the character of pain becomes changed; it is more acute, or various acid secretions are discharged from the mouth, and the affection assumes a complexion which

Andral has described under the name of secretory irritation, or gastrorrhœa, in which there is an excessive secretion of mucus from the lining membrane of the stomach.

In many cases of diseases of the stomach we find affections of the sensibility constantly combined with inflammation, even on the first appearance of disease; and hence many symptoms accompanying protracted and severe forms of indigestion, which are of the inflammatory kind, do not give way to an antiphlogistic treatment. This has not escaped the penetration of Andral, when he tells us that "many of the symptoms observed during the progress of inflammatory diseases of the stomach, such as nausea, vomiting, &c., are due to affections of the sensibility."¹

In practice, these remarks are found of vast importance. Thus, when we find that certain forms of indigestion, of the inflammatory character, cease to be relieved by antiphlogistic treatment—the symptoms continuing in almost their primitive intensity, or perhaps even more acute—a recourse to other remedies will sometimes at once remove them. Here combinations of the salts of morphia with those of iron, of bitters and chalybeates, or of the sub-nitrate of bismuth with magnesia, will be of the greatest service. We must not suppose, because the affection has not yielded to antiphlogistic treatment when it appeared inflammatory in the commencement, that such remedies have been improper or useless. These have removed the inflammatory action, but have left the disease of sensibility remaining. The exhibition of tonic medicines before the use of leeches to the epigastrium would, in all probability, have considerably aggravated the disease.

There are certain affections of the sensibility of the stomach which are combined with inflammatory action from the commencement, and in which a combination of treatment is highly successful. Thus, patients will commonly present themselves labouring under nausea and pain in the stomach, with great distension and acidity after eating; with these symptoms there commonly co-exist palpitations and pulsations in the epigastrium, with heat, pain, and tenderness, rolling and indescribable feelings of uneasiness. Accompanying these states there is frequently hurried breathing, considerable arterial excitement, and excessive mental distress. The mental affections, in such conditions, are often of the most distressing character, in some instances, almost approaching to the insane state. Many cases in the work of M. Barras are of this description, and several of those in my paper in the Dublin Journal are of similar character, particularly cases eight, nine, ten, eleven, and twelve. Whatever may be the primitive character of such diseases, there is evidently local determination of blood to the parts situated in the epigastric region, such as the stomach, and the great nervous centres immediately behind it.

In such forms of disease a combination of treatment, apparently

¹ See *Cours de Pathologie Interne*, tome i., p. 62.

of an opposite character, is the most certain method of cure. I have seldom seen it fail; I have seen such forms of disease repeatedly aggravated by a tonic treatment, or by an antiphlogistic one separately employed. I have seen them quickly cured by applying small numbers of leeches to the epigastrium from time to time, four or six at each application; regulating the bowels with warm aloetic aperients, combined with morphia and prussic acid; at the same time administering freely the preparations of iron, of which I believe the common carbonate, combined with calumba powder, to be the best.

I shall detail a few cases of such forms of disease, in their combination with certain local determinations of blood and also in their forms of sympathetic irritation of other organs.

CASE 4.—Gastrodynia—Pyrosis.

I was consulted, by a lady, for a disease characterised by the following symptoms:—Intense heat in the stomach and throat, with pain so great, on taking even the simpler forms of food, that she was unable to do so more than once in the twenty-four hours. The affection had commenced, some months back, with slight uneasiness after meals, and had been progressing till now, in spite of varied medical treatment. The long periods of abstinence from food, and the imperfect digestion of what little was taken, had reduced my patient to an extreme degree of emaciation; her weakness was great and she walked with much difficulty. The local pain was accompanied by regurgitations of sour fluids and gases; whatever was taken by way of support was generally vomited intensely sour. The bowels were constipated, which always added to the existing complaints; there was hardly any tenderness on pressing the epigastrium, but this region appeared rather full when carefully examined. Every kind of medicine hitherto taken had increased the pain equally with aliment.

A blister was ordered to the epigastrium, and half a dram of the ponderous carbonate of magnesia prepared by Henry, of Manchester, was given every four hours, combined with ten grains of calumba powder, and the diet was limited to the farinaceous food made by Hards, of Dartford.

8th. The first powder had eased the pain; to-day there is much less; the food had not been vomited, and had given no pain. No action upon the bowels.

9th. Bowels acted upon three times. All the symptoms ameliorated.

11th. Still improving. Animal broths and chicken are taken with tolerable comfort, but the bowels not having been acted upon, and the head, in consequence, affected, I ventured to prescribe some aperient medicine, of a character rather more active, still combining it with the carbonates of soda and magnesia. The aperient had produced so much pain that it was obliged to be laid aside. The

powders, which invariably gave relief, were again taken, with a wine glass of the compound decoction of aloes, and two drops of hydrocyanic acid, three times a day.

16th. The medicines act sufficiently, and cause no pain. Boiled mutton and chicken are taken with but a trifling degree of inconvenience. The tongue is clean ; she has gained flesh and strength.

Remarks.—It is evident, on examining the history of this case, that its origin is to be traced to morbid irritability of the nervous capillaries of the stomach ; and we find the secretions of its follicles and lining membrane secondarily becoming disordered. As the secretions of all parts go on under the direction of the nerves supplying them, it follows that they can only remain healthy as long as the secreting organ is supplied with its due proportion of nervous influence in its normal physiological state ; and when this is impaired or deranged, is in excess or diminution, over-excited or not sufficiently sensible to stimulus, a corresponding condition of morbid secretion is the consequence. After long-continued irritability of the stomach, of which pain after meals is at first the only symptom, we have obstinate pyrosis, and the moment the pain begins, the glairy acid fluid will begin to run from the mouth ; this I have commonly seen. In some cases, there is such a disposition to the formation of acid on taking food, from the defective quantity or morbid quality of the secretions of the stomach, that every article of diet, whether solid or fluid, is either rejected in a perfectly acid state, or constantly regurgitates into the mouth fluids so sour as almost to disorganise its lining membrane. This action from time to time, upon the coats of the stomach, at length renders it so sensible that it is unable to bear either the impression of food or medicine, and the patient if not speedily relieved, would soon fall into a state of disease from which he would with difficulty recover. The first step in the treatment of these forms of disease is to correct the morbid secretions of the stomach, and for this purpose no medicine is so beneficial as Henry's ponderous carbonate of magnesia, combined with calumba powder, and administered in the way I have directed ; a sixth or eighth of a grain of the acetate or muriate of morphia may be added, or from ten to twenty minims of the liq. opii sedativus, dropped into the vehicle in which it is administered. I am convinced that every thing of a more active character that is employed before the secretion of acid is corrected, and the stomach rendered less sensible to impression, only aggravates the disease, and renders the recovery longer and more tedious. The second step in the treatment consists in endeavouring to remove the disposition to the formation of acid ; this I shall exemplify in the further detail of this case.

March 29th. The pain still continues in a milder form, and invariably comes on after taking a mixture of aliments at dinner. The medicines at first prescribed invariably relieve the pain when it occurs, probably by merely correcting the acid secretions which cause it. I ordered the acetate of morphia now to be taken in doses

of a sixth of a grain, three times a day, combined with four of rhubarb; and the powders to be taken occasionally in the event of an attack of pain and acidity.

April 18th. Since the last report there has been no pain, excepting on one day, when, at a dinner party, she ate freely of mixed food and green vegetables, and drank a glass of sherry; immediately after the meal, sudden swelling of the stomach took place, with pain and vomiting of sour fluids. In order perfectly to restore my patient, I limited her to Hard's farinaceous food with milk or without, for breakfast and supper, and common milk-and-flour pudding for dinner, which was afterwards changed to any one species of animal food, without vegetables. At the same time the ammonio-tartrate of iron was taken in doses of four grains three times a day, with rhubarb and morphia. Under a steady perseverance in this plan, my patient perfectly recovered health and spirits.

Remarks.—In cases like the present, accompanied by the predominating symptoms of pain and acidity, the attacks are exceedingly liable to recur, unless the patient can be persuaded to persevere in a strict dietetic regimen, and also in medical treatment. The effects—*i. e.*, pain and acidity—are soon removed by an appropriate plan of treatment, as is well marked by the detail of this case from the 7th to the 16th of March, at which time my patient fancied herself well, but the morbid irritability of the gastric nerves is not so soon or so easily cured. As long as they are kept free from impression, by having the morbid secretions corrected, or are not irritated by an over-stimulating diet, the patient is tolerably easy; but the moment one is discontinued, or the other indulged in, the attacks of pain come on with as much violence as at first. This case well illustrates the evil of a mixed diet, in cases of morbid irritability like the present, evidenced in the reports of the patient's state on March 29th and April 18th. Persons will remain tolerably easy under any one article of food, even if it be rather of a stimulating kind; but a mixture invariably produces a return of suffering. We know, from the researches of Prout, Tiedemann and Gmelin, and Dr. Beaumont, that the gastric juice, during digestion, contains free acetic and hydro-chloric acids, and that these acids are furnished in greater quantity in direct proportion to the more or less stimulating qualities of the food: under a mild farinaceous diet, the acid is hardly to be detected. It is the impression of stimulating food upon a morbidly sensitive surface which gives rise to the formation of so great a quantity of acid, which, when formed, reacts upon the mucous coat, and produces pain. We have certainly cases of disease in which the stomach experiences pain merely from the impression of food; but the one under consideration appears to derive additional mischief from the presence of its own morbid secretions, for the moment they are corrected, and the acid neutralised, the patient is, for the time, free from pain. The plan of treatment consists in removing all the sources of irritation, in correcting the morbid secretions, and rendering the nerves less sensible to impres-

sion. The two former objects are to be accomplished by diet and medical treatment, such as I have recommended in the detail of the case. For the latter purpose I have tried nothing more efficacious than the combination of morphia with the salts of iron, at the same time having occasional recourse to the alkalies. The farinaceous food, made with milk and lime water into gruel or puddings, is exceedingly serviceable. The bowels which are inclined to constipation in most cases, may be regulated by small doses of the ponderous carbonate of magnesia in some bitter infusion, as cascarrilla or orange peel, to which still should be added some sedative, of which the liquor opii sedativus is the best; the tincture of hop or hyoscyamus may likewise be employed, but, as far as my experience goes, the first is the best.

The sympathetic affections of other organs whether functional or organic, which are called into action by diseases of the stomach are exceedingly variable, and are most commonly seated in the lungs, the heart, the kidneys, or the brain. Functional affection of the brain, as regards the exercise of the intellectual faculties, producing despondency, impaired judgment, and mental excitement, is a disease well known as a result of these, under the term hypochondria. Accompanying functional affection of the brain, as far as that part of it devoted to the intellectual faculties is concerned, we find a similar species of derangement extending to the nerves of the special senses, producing false impressions both upon the eye and ear. The nerves here partake of the same morbid action as those of the stomach, and convey false impressions to the brain; and, in the second instance, this organ does not receive the impressions which are transmitted to it correctly, but judges of them in an erroneous manner. The point of commencement of this general state of nervous excitement will, I believe, be most commonly found in the stomach; at least, in the present instance, I have only to do with it as far as this organ is concerned; we shall find it aggravated or allayed in proportion to the mitigation or increase of the stomach disease. It may or may not be accompanied by vascular excitement.

CASE 5.—Morbid sensibility—Epigastric pulsation, with great mental uneasiness.

A lady, aged forty, had menstruated irregularly since the birth of her last child, which is three years old; occasionally profuse discharges have taken place, but for a month preceding her attack there had been none. Her food now occasioned great pain, accompanied by nausea and great distension after eating. Sensation of rolling in the stomach, with broiling and intense acidity. These symptoms were partially alleviated by small doses of the ponderous carbonate of magnesia and the application of a blister. Great despondency succeeded, with indescribable sensations of uneasiness in the stomach, not amounting to pain, but occasioned by a sensa-

tion of rolling in it. The nausea continued, and frequently ended in vomiting. The tongue was clean; bowels slightly constipated; pulse sharp, and at eighty. On examining the epigastrium, a strong pulsation was evident to the eye; it was confined to this region, and raised the hand with great force when laid over it; it was accompanied by a dull pain, extending over a small surface, which was slightly increased by hard pressure. The skin was also here very hot. Various remedies were tried, but all, even the most simple—such as the carbonate of soda or magnesia, with morphia—increased the pain and added to the distress. Leeches were now had recourse to, which were applied every other day for six days, and were succeeded by one or two blisters. Under this treatment the more urgent symptoms yielded, but the uneasiness of mind, pyrosis, and occasional vomiting, continued; which, when the stomach was able to bear medicine, were relieved materially by small doses of morphia and lime water. During the whole of this distressing affection, which continued for several weeks, the patient had the most haggard and anxious countenance. All kinds of aliment increased the complaint, except Hard's farinaceous food, which was taken with tolerable comfort.

This case, similar, in many of its features, to inflammation of the mucous coat of a subacute character, does not appear to me to have been a disease of that nature. The extreme despondency, almost approaching to the insane state, the epigastric pulsation, the almost entire absence of tenderness on pressure, and the more than usually irritable state of the stomach (exceeding that observed in subacute inflammatory disease), are, in my opinion, proofs that the disease was not of this character; at least it had other complications. The "rolling sensation, over and over," which this patient complained of, is likewise peculiar; I have seen several instances of it. The heat in the epigastrium is worthy, also, of remark. We have in this a class of symptoms certainly indicating increased local determination of blood, but whether accompanied by inflammatory action of the mucous coat or not is a matter difficult to determine: I certainly am inclined to think that they are not. Dr. Abercromby mentions the case of a lady who had constant vomiting of food and severe pain, which at length became so bad that she was unable to retain any thing upon her stomach, except fluids in very small quantities. No treatment afforded relief, except blisters to the epigastrium. She gradually wasted and died, and on examination no disease could be discovered in the epigastric region, except some enlarged glands behind the stomach. I do believe that many cases of the description I have related are rather affections of the cœliac ganglia and great nervous centres,¹ such as the solar plexus, than diseases of the coats of the stomach itself. The nature of the diseases is such, however, that this can rarely be verified by dis-

¹ Cerebrum abdominale, Lobstein, De Nervi Sympathetici Fabrica, Usu et Morbis, Commentatio, &c., &c.

section. Dr. Abercromby's appears to verify this view ; the direct communication of the coronary plexuses of the stomach with the great nervous centres of the epigastrium would at once account for any sympathetic disease of this organ. The distribution of the nervous plexuses, also, in the course and upon the coats of the aorta, and arterial branches in the epigastrium, seem to explain their increased pulsations by some irritation of the nerves supplying them. We know that in common gastritis epigastric pulsation is rarely present. The ganglia and plexuses of the nerves of the involuntary functions are abundantly supplied with arteries, and consequently, must be subject to the same class of diseases as all other parts into which arterial blood penetrates, particularly inflammation and its terminations. All the cases of pulsation in the epigastrium detailed in this chapter were evidently owing to local determination, and relieved by antiphlogistic remedies.

CASE 6.—Morbid sensibility of the stomach, with epigastric pulsation.

A lady labouring under hepatic disease became affected, during its progress, with pain after taking food, occasional vomiting, and tenderness in the epigastrium of a slight character. There was a strong pulsation at all times visible to the eye, and communicating a powerful impulse to the hand laid upon it. Her dyspeptic symptoms and the pulsation disappeared after one or two applications of leeches, succeeded by blisters.

CASE 7.—Morbid sensibility with great mental distress, succeeding fever.

A lady, after an attack of typhous fever, became affected, during her period of convalescence, with constant pain after taking food, and occasional vomiting ; the stomach at length became so irritable that it would not retain either food or medicine. The mental uneasiness accompanying this state was distressing in the extreme. She rolled from one side of the bed to the other, constantly complaining of her stomach, and this state continued, night and day, for weeks. The tongue was clean, the pulse quiet, the skin cool, and there was no pain whatever in the epigastrium when it was examined by pressure. Opiates, alkalies, and tonics, all aggravated her state of distress and increased the uneasiness. I once ventured to administer a few grains of the carbonate of iron, but its effects were frightful, and the accession of burning pain after it intolerable. Medicines were at length omitted altogether, the patient was removed into the country, and the mildest food given in very small quantity, from time to time. Under this plan, after a long period, she at length recovered.

CASE 8.—Morbid sensibility, with great despondency, succeeding fever.

A lady, after an attack of typhous fever, which had prostrated her whole family, and from which she had lost a favourite child, became affected with pain after taking food, accompanied by a burning sensation, and its occasional rejection by vomiting. There was extreme mental uneasiness and great despondency. The tongue was clean and moist, the pulse soft and quiet, and there was no epigastric tenderness. Medicines and food of all kinds aggravated her condition and increased her distress. The former were laid aside, small portions of farinaceous food were given from time to time, and blisters applied over the stomach. This disease continued a long time, but the patient, under a continuance of the farinaceous diet and blisters—the only plan which afforded any relief—at length was restored to her accustomed health.

Cases five, seven, and eight, are examples of that extraordinary state of mental wretchedness dependent upon morbid irritability of the stomach. Case five differs from seven and eight in being accompanied by considerable local vascular excitement, whilst in the two latter it was entirely absent. The first case succeeding to profuse uterine discharges, whilst the latter are set up during convalescence from acute diseases. Broussais and the pupils of his school attribute, as is well known, all these affections to chronic or subacute forms of gastro-enteritic inflammation; his opinions on this head are detailed in his one hundred and forty-fifth aphorism.¹ Although the brain becomes secondarily affected from the irritability of the stomach, it appears that there must be some peculiar organisation on the part of the former, some unusual degree of irritability, which renders it so liable to be thrown into a state of morbid sympathy with diseases in other organs. That these forms of stomach disease are dependent universally upon inflammatory action, I conceive to be a highly dangerous opinion to entertain. I have seen patients leeched again and again, without the least benefit, in such states. I do not mean to deny that increased local vascular action is not occasionally present; I believe it is, and was so in case five but not in seven and eight. Where this is present with great mental uneasiness, in such states as those described, it will generally be accompanied by epigastric pulsation. The great point in the treatment of these affections is to remove all sources of irritation from the stomach, both in the form of food and medicine. The smallest portions of the former should at first be tried, and gradually increased: a table-spoonful of gruel, or of Hard's farinaceous food, made with water, and not milk, which is commonly rejected immediately, in form of curd, may be given at longer or shorter intervals, as the stomach will bear it. The best medicines,

¹ Examen des Doctrines Medicale, tome i.

if the stomach will bear any, which it sometimes will not, are a few drops of the liq. opii sedativus in lime water, or a quarter or a sixth of a grain of the acetate of morphia, with a few grains of carbonate of soda. With these remedies blisters should be successively applied to the epigastrium; they should be small and suffered to heal, and then reapplied. I have seen much mischief occasioned by large and irritating blisters, but particularly by the tartar-emetic ointment and plaster. These add to the irritation; and I have seen many instances in which they were productive of decided harm. On the other hand, blisters of small size, frequently repeated, are the best remedies I know of in diminishing the irritability of the stomach; and the moment this viscus begins to regain its tone the patient's mind becomes more settled and composed. In these instances, as in that before mentioned, the extremely irritable mind and morbid state of feeling of the patient should never be lost sight of, dependent as they are upon the stomach disease, and aggravated by every cause which increases it. Too much caution cannot be employed, the diet cannot be too unstimulating, or the plan of medication too unirritating and simple. Cases five, seven, and eight, are, as I have before said, examples of mental affections dependent, no doubt, upon some cerebral irritation, which was called into action by derangement of the sensibility of the nerves of the stomach and its vicinity. Broussais in the commentary to his one hundred and seventh proposition,¹ tells us that the sensibilities of the viscera are infinitely variable, impressions which are not sensible, to one person, becoming, to another, stimuli, which are the source of various morbid actions; but that these impressions should so act he admits a peculiar idiosyncrasy, to which he gives the name of "*nevropathie*," and which consists in a peculiar and excessive irritability of the nervous system. The opinion appears founded in truth and nature; it is the true nervous temperament at its full development. What in another person would produce bodily pain, here is productive of mental disturbance. Insanity is a common termination of prolonged irritation in the abdominal viscera of such patients, particularly in the stomach. I know two instances in my own practice, besides the one I have mentioned.

It is of the greatest consequence, as regards the treatment of diseases of the stomach, both in their primary and advanced stages, to ascertain whether the symptoms they exhibit are dependent upon nervous or vascular irritation, whether the affection be unaccompanied by inflammatory action, or whether the nervous symptoms which are manifested during the progress of the disease depend upon inflammation or not. I believe that, in a great majority of instances, an increased fulness of blood in the mucous membrane of the stomach is present, at least during the paroxysm of the attack; yet we must be extremely cautious how we take such an

¹ *Commentaire des Propositions de Pathologie*, tome i., p. 117. Paris, 1829.

opinion as the sole basis of our treatment. The degree of nervous irritation exhibited, whether this consist in actual pain, in mental despondency or irritation, in anomalous feelings attended by various exalted or diminished states of the sensibility must be examined in relation to the actual state of vascular excitement with which they are or are not accompanied, and the treatment proportioned accordingly. The relative proportions which these two states of excitement bear to each other, and the degree in which each is developed, must form the basis of all rational treatment, both medicinal and dietetic. Occasionally the symptoms dependent upon an inflamed state of the mucous coat of the bowels are confined almost entirely to those which are called nervous—*i. e.*, phenomena which are attributed entirely to the nervous system alone—are those merely which are found as indicative of inflammatory disease. I shall take the table arranged by Jolly for the basis of the distinctions between these two states, making comments upon it, as I proceed, where I think the symptoms of difference are inaccurate or not to be depended on.

SYMPTOMS OF THE NERVOUS
AFFECTIONS OF THE
STOMACH.

Pain. ¹	—Acute, tearing Intermittent Diminished by pressure And by taking food More frequently coming on in the morning.
Tongue.	—Sometimes coated ² Broad Clean
Appetite.	—Morbidly increased ³ Depraved. Wish for high-seasoned meats and alcoholic drinks.

SYMPTOMS OF THE INFLAMMA-
TORY AFFECTIONS OF
THE STOMACH.

Pain. ¹	—Dull, obscure Constant Augmented by pressure And by food Increasing towards the evening
Tongue.	—Almost always red ² Contracted Thickly coated
Appetite.	—Wanting ³ Never depraved Aversion to both

¹ The two characters of pain described by Jolly cannot be depended upon as showing any certain distinction between inflammatory and nervous disease of the stomach, that of the nervous kind is so constantly associated with, produces, and succeeds to, partial inflammations of the mucous coat.

² The state of the tongue is infinitely variable in the different forms of disease. The observations of Louis and Andral, and my own cases, show that it may remain clean in aggravated forms of inflammatory disease, even where change of structure has been produced. It may be foul, and even aphthous, where the gastric inflammation is not urgent or well-marked.

³ Boulimia, or morbidly increased appetite, is a symptom commonly attendant on an inflamed condition of the mucous coat of the stomach. Total loss of appetite may also be present, and, again, this function may remain unimpaired. We see how uncertain are all these rational signs of disease. A

SYMPTOMS OF THE NERVOUS AFFECTIONS OF THE STOMACH.	SYMPTOMS OF THE INFLAMMA- TORY AFFECTIONS OF THE STOMACH.
Taste. —Metallic Acid	Taste. —Bitter Clammy
<i>Vomiting</i> of mucous discharges	<i>Vomiting</i> of food
<i>Alternations of Heat and Cold</i> in the abdomen	<i>Constant Heat</i>
Thirst. —Not increased Wish for drinks sometimes hot, at others cold	Thirst. —Increased Constant desire for cold drinks
Constipation. —Frequent ¹	Diarrhoea. —Frequent ¹
Stools. —Natural Not offensive	Evacuations. —Bilious, mucous, or bloody Offensive
Pulsations in the Epigastrium. —Intermittent Not synchronous with those of the heart	Pulsations in the Epigastrium. —Natural, continual Synchronous with the heart
No Fever Or intermittent	Fever. —Frequent Continued
Increase of Disease. —Early in the day	Increase of Disease. —In the evening
Urine. —Clear ² Abundant	Urine. —High coloured ² Scanty
Heat of Skin. —Natural	Heat of Skin. —Augmented
No Progressive Emaciation	Progressive Emaciation.
Physiognomy. —Natural	Face. —Pale, sallow, or sunk and anxious
Temper. —Morose, fearful, irritable	Temper. —Little altered
Diagnostic. —Sometimes obscure	Diagnostic. —More manifest
Prognostic. —Less dangerous	Prognostic. —More dangerous
Anatomical Characters. —Equivocal, or altogether wanting.	Anatomical Characters. —Constant, but varied.

remarkable case of morbidly increased appetite, attendant upon cancer of the stomach, is detailed in the Lancet of October 1, 1836.

¹ Constipation is a symptom almost invariably accompanying both forms of disease. Diarrhoea is certainly present in some instances of the inflammatory affections, even in the commencement of disease; in the advanced stages, where complaint has extended to the bowels, it is of more frequent occurrence.

² Dézeimeris has related some cases where diabetes appeared dependent upon chronic gastritis, at least the cure of the gastritis completely removed the diabetes. Andral has also detailed a case where diabetes coincided with chronic gastritis; the former disease was removed by curing the latter.—Clinique Médicale, by Spillan, p. 869.

The symptoms of vascular and nervous irritation of the stomach are sometimes so similar that the most experienced practitioner in diseases of this kind is occasionally at a loss to decide upon their precise pathologic character. I attended a patient, for two years, with all the symptoms of chronic gastritis, which were accompanied by progressive emaciation ; the peculiarity of the lancinating pains which were occasionally felt in the epigastrium, and the clean state of the tongue, made me suspect some cancerous affection of the stomach. The extreme restlessness of his nights led to the administration of opiates in the evening, after the disease had continued for eighteen months, when he was become much emaciated. From this time the signs of gastric disease began to decline, and at the end of some months after, having continued the opiates for the whole time, the patient had gained much strength, and was actually become fat. This, then, was evidently a disease of sensibility, presenting all the symptoms of a chronic inflammatory state. Two very remarkable cases in the Clinique Médicale, at pages 871 and 876 of Spillan's edition, are likewise examples of diseases of a nervous character assuming the type of inflammatory affections in the chronic form. These nervous affections may consist sometimes in excitement (erethism), at others in diminished tone (atony), of the nervous influence of the stomach. They resemble, however, sometimes so closely the inflammatory affections, that the results of treatment are occasionally our only guides as to their nature. "Let us not be astonished if, in a considerable number of patients, we see symptoms more or less similar to those which characterise chronic gastritis become permanent, and even aggravated, by a pure antiphlogistic treatment, and yield, on the contrary, to medicines of another description. It is because those symptoms were not produced by gastritis, but by other morbid states of the stomach."¹ There is another form of disease, to which Barras has given the name of "*complication de la gastro-enteralgie avec la gastro-enterite*," in which there is a constant blending of the symptoms noticed in the preceding table. Thus, we have the symptoms of gastritis presenting themselves, sometimes, with an exaltation of the nervous sensibility of the stomach. These symptoms of a morbid state of the sensibility of the stomach may be combined with inflammatory disease during its progress, rendering the diagnosis difficult and the treatment embarrassing. They may precede the inflammatory symptoms ; these may become added to the nervous after the continuance of the disease, in this form, for some time ; or, in the last place, the gastritis makes its appearance, and derangements of the sensibility subsequently come on.

¹ Andral, p. 873.

CHAPTER VI.

ON AFFECTIONS OF THE STOMACH CHARACTERISED BY MORBID STATES OF ITS SECRETIONS.

I have described, in the preceding chapters, two primitive morbid states of the stomach; the first of an inflammatory character, and a second which is chiefly characterised by a morbid condition of its sensibility. There is, however, a third form of primitive morbid state of the stomach, resembling, in some measure, in its symptoms, the other two, but differing from them in its pathologic character, and aggravated by either of the modes of treatment appropriate to the two first forms of disease. This disease has attracted the attention of various writers. Mr. Abernethy has termed it a disordered state of the digestive organs or of the chylopoietic viscera, and he opposed to it mercurial purges, with solutions of neutral salts in some bitter infusions. The late Dr. Hamilton, of Edinburgh, in his work on Purgative Medicines, recognises the morbid state of which I am about to speak. This kind of primitive morbid state of the stomach consists in a disordered state of secretions poured out by the mucous surfaces of the stomach and first passages, or by those glands whose products are necessary to the completion of the digestive process, of which the liver is the chief. The pathologists and physicians of the continent have recognised this state of the stomach. Stoll, in his *Ratio Medendi* and other works, has given numerous examples of it; Tissot, Finke, De Larrroque, and Andral, have also described and admitted it as a state of disease distinct from inflammation and not dependent upon it, although in many instances associated with it. Broussais and the pupils of his school deny its existence, except as a secondary affection, the consequence of inflammation. Every-day experience, however, must convince those who have paid attention to the subject that there is a form of irritation in the stomach—which may be taken as the type of a certain number of cases of indigestion—which is not relieved by leeches to the epigastrium, although epigastric pain and tenderness be present, nor is it mitigated by sedatives or tonics, but gives way to aperients, and occasionally is only cured by emetics. This disease, then, recognises for its cause a morbid condition of the secretions of the stomach and the liver, which, in this condition, acting upon the peculiar sensibility of the mucous surfaces of the stomach, produce various forms of disease more or less acute, either in this organ itself or, by sympathetic irritations, in other parts, more particularly the brain, lungs, and heart.

To this form of gastric irritation some of the French pathologists apply the term “embarras gastrique,” whilst by others, as the Broussaists, this term is applied to a state of disease which they consider the first form of inflammation; by others this is termed a

saburræ state of the stomach, because the persons employing this term fancy the stomach or first passages to be loaded by a mass of morbid secretions which are termed saburræ. In this country the comprehensive term indigestion is applied indiscriminately to this as well as the other morbid states of the stomach which I have already mentioned.¹

In this affection, as I have before said, a morbid condition of the secretions is the predominant feature of the disease. Professor Recamier² has detailed accounts of the dissection of several subjects who have sunk from aggravated diseases of this character. He found, in these cases, the liver pale and voluminous, the gall-bladder full of black bile, which was extravasated in large quantities in the duodenum, jejunum, and ileum; the stomach and duodenum were likewise coated with thick viscid secretions, under which the mucous membrane did not present the least trace of inflammation or congestion. Andral has also described a disease under the name of gastrorrhœa, in which he considers this state of the secretions, as a predominant and primitive feature of disease, to be as well established as any other point of pathology.

In enquiring into the symptoms which denote or accompany these forms of secretory irritation, we shall find them, in some measure, resembling those of hyperæmia, or active congestion of the mucous membrane, or some forms of inflammation. They are of two classes, referable, in the first instance, to the stomach itself, and secondly, exhibited in various sympathetic affections of other organs.

In secretory irritation of the stomach, the two first points that demand our attention are the state of the tongue, and that of the epigastric and hypochondriac regions. The tongue is generally broad, rather pale and moist, not contracted, and without increased redness at its point or edges. The papillæ are not elevated, enlarged, nor very vivid in their appearance; the coating of the tongue is thick, and of a dirty white or yellowish colour. The epigastric region is full, but indolent; hardly sensible or tender on pressure, unless the disease be of long standing. If the complaint have been long in existence it occasionally produces or becomes associated with, increased vascularity of the mucous membrane of

¹ Il faut se rappeler que l'estomac sécrète deux espèces de liquides: une mucosité qui est produite par les glandes de Brunner, et une humeur acide qui est proprement le suc gastrique; en outre, l'orifice pylorique est tellement disposé qu'il n'empêche pas le reflux de la bile dans la cavité du ventricule. Faut-il attribuer à la sécrétion de ces différents liquides un rôle dans la production de l'embarras gastrique? ou bien faut-il n'y voir qu'un certain degré, ou une certaine forme de l'irritation de l'estomac?—Littré, Diction. de Médecine, 2d edit., art. Gastrique (fièvre et embarras). It is plain that the word irritation here used is not to be understood in the sense generally applied to it by the French writers, that of a certain degree of inflammation, since, in the forms of disease of which we are speaking, an antiphlogistic treatment is commonly totally ineffectual, and sometimes positively hurtful.

² Quoted in De Larroque, Op. cit., p. 307.

the stomach; and in such instances the epigastrium and hypochondria acquire increased heat, and become more sensible and tender on pressure. Both De Larroque and Andral have noticed this complication of inflammation, or active congestion, with various forms of disorder of the secretions of the stomach and first passages. "On opening bodies," writes the latter of these authors, "one is sometimes struck with the prodigious quantity of mucus on the internal surface of the stomach and intestines. This often forms a thick layer extending over a great portion of the intestine, which, at first sight, might be taken for the mucous membrane itself, and that, too, white and healthy. Beneath this layer of mucus the internal surface of the canal may appear in two opposite states. In the first place the mucous membrane may be of a bright-red colour, and this is even the most usual case; but it may also be pale and without the least trace of injection, the increase of a secretion not necessarily inferring the formation of a sanguineous congestion in the secreting organ. The mucous membrane that lines the superior surface of the tongue presents, in this respect, the greatest analogy with what is found, on opening the body, in that part of the alimentary canal that is concealed from view during life. Thus at the same time that it is loaded with an unusual quantity of mucus, it is itself sometimes of a bright-red, sometimes of its natural colour, and, lastly, at times even paler than natural."¹

When the secretory irritation becomes combined with active congestion or inflammation, there is generally a change in the symptoms which indicate it. Thus, the tongue, which was originally pale, broad, moist, and coated, becomes contracted, red at its point and edges, the papillæ vivid and enlarged. At the same time various other symptoms indicative of gastric hyperemia, or inflammation are ushered in; to enumerate these would be to recapitulate what has been said on this subject in chapter the third, to which I refer the reader.

As a disordered condition of the secretions of the stomach may be combined with congestion or inflammation, in some instances, so may it in others be associated with a variety of nervous symptoms which are totally different from those indicating increased determination of blood, either to the stomach or parts sympathetically affected. Thus, many cases of stomach disease occasionally present themselves where nausea and occasional vomiting are present, bad taste in the mouth, with uneasiness and weight in the epigastrium. Sometimes the patients vomit daily, and are never free from sickness, except for a short time after the stomach has discharged its food, or a considerable quantity of bile or mucus. There is extreme mental despondency or irritability, stupor and weight in the head, with severe pain over the forehead, quickened breathing, and a dry cough. Occasionally diarrhoea accompanies

¹ A Treatise on Pathological Anatomy, translated by Drs. Townsend and West. Tome i., p. 170. Dublin, 1831.

these states, or there is an alternation of constipation and looseness. That these symptoms arise from the presence of an increased quantity or morbid quality of the secretions of the stomach, acting upon the peculiar sensibility of its lining membrane, is evident from many reasons. The stomach affection and its sympathetic diseases are not relieved in these states either by bleeding, counter-irritation, opiates, or even, in many instances, by aperients, though these are generally very serviceable. I shall detail some cases in illustration.

CASE 1.—A lady, aged twenty-nine, one year married, had suffered for three months prior to her consulting me from total loss of appetite, weight and uneasiness in the epigastrium, constant nausea, with frequent vomiting of food, and mucous discharges. She had constant headache, seated in the forehead and temples, and a total indisposition to sleep. The breathing was quickened, and there was a short, dry, frequent cough. The lungs, on examination, afforded no evidence of disease. Leeches, blisters, and counter-irritants, had been applied to the epigastrium, with the effect rather of aggravating than relieving any of the symptoms of stomach disorder. Aperients, in various forms, had been tried to their fullest extent; opiates had also been administered, with a view of procuring some rest; but all had failed. The patient actually passed night after night without closing her eyes. Leeches were now applied to the temples and behind the ears, and these were succeeded by blisters; these remedies aggravated the pain in the head, and brought on delirium. The stomach still continued in the same state, in spite of all that had been done; whilst the sympathetic irritation of the head and chest were worse. I now reflected whether I had not to treat one of those diseases which depend upon the accumulation of a mass of morbid secretions in the stomach and first passages, and which, though admitted as a fruitful source of disease by Stoll, Tissot, Finke, Pomme, De Larroque, and others, had been almost ridiculed out of the domain of pathology by the doctrine of irritation substituted by Broussais, in which all these secretory disorders are considered as the result of inflammatory action. Finding that local depletion, blisters, counter-irritants, and aperients had failed, whilst the state of the patient, the heat of skin, and arterial excitement, completely prohibited the exhibition of tonics, I determined to try the effects of the tartar emetic, from which vast benefit had been derived in such instances, by De Larroque and Andral. Two grains of this substance were administered. The patient vomited an immense quantity of bilious and mucous fluids; the stomach became comfortable, the sickness and nausea disappeared, and for two days the head remained free from pain. In a few days the symptoms returned in a milder form. The remedy was again employed; vomiting of the same discharges to a much less extent. After a third repetition there was no more return of complaint; the patient became perfectly convalescent.

Remarks.—This case exhibits two or three points which it is

important to notice :—1st. That secretory irritations of this kind may continue for an indefinite period without being accompanied with any real inflammatory action of the stomach. 2dly. The sympathetic affections which they excite are sometimes of a purely nervous character and aggravated by all antiphlogistic treatment, as the present case shows. We need only refer to the effects of treatment to establish this. Occasionally those states of the head which succeed to such forms of irritation in the stomach, terminate in stupor, serous apoplexy, or fatal forms of cerebral congestion; but effusion of serum is more common than the latter state. In speaking of the diseases of the brain which succeed to different forms of gastric irritation, we shall enter into this more fully.

I shall now bring forward a case to show that these forms of disease in the stomach may assume a purely chronic form, and simulate confirmed inflammatory disease, yet consist entirely in a disordered state of the secretions.

CASE 2.—A lady, thirty-seven years of age, in consequence of a series of calamities, became troubled with an affection of the stomach, characterised by the following symptoms :—Pain after taking even the simpler kinds of food, which was accompanied by a convulsive cough that continued till what was taken had been rejected by vomiting; the more severe the pain which followed a meal the more troublesome and intense was the cough. She had nausea, flatulence, uneasy feelings in the region of the stomach, and sudden flushings of the face; she had no appetite, a broad coated tongue, offering no traces of redness at its point or edges, although considerable pain existed in the epigastrium and in the right hypochondrium. There was an alternation of constipation and diarrhoea, the pulse a little frequent, the urine scanty, sleep disturbed, and the temper morose and irritable. These symptoms had existed for four years with little variation, during which time the patient had emaciated considerably.

The medical attendants of this lady, concluding that she laboured under some obscure and chronic inflammatory affection of the stomach, recommended the application of fifteen leeches to the epigastrium.

This local bleeding aggravated all the symptoms, the pains connected with the stomach and the process of digestion were considerably increased, the appetite rendered worse, whilst the cough became more frequent and hoarser than before the application of the leeches.

Blisters, aperients, and various other remedies had been tried without success, or at least with but temporary benefit. M. De Larroque, under whose care the patient was placed in an advanced stage of her disease, on closely analysing the symptoms and reflecting on the failure of the remedies previously employed, was led to suppose that the irritation in the stomach might be of the secretory kind, and probably a recourse to the use of emetics might be of service. Constipation was present, and the patient had experienced

a partial relief of her symptoms from the use of aperients; but the disease had soon become as distressing as ever.

At this period the patient was ordered twenty-four grains of ipecacuanha to be taken at two doses. She threw up an enormous quantity of bile and mucus; the cough diminished with all the other symptoms; a recourse was now had to purgative medicines, which in a few weeks completely restored the patient.¹

Remarks.—In this case we observe the disease to have assumed a more chronic form than in the last; it had existed four years when placed under M. de Larroque's care, was accompanied by emaciation, and certainly assumed all the appearance of an organic affection of the stomach. We witness here the failure of bleeding and counter-irritation over the epigastric region, as also of purgative medicines; with regard, however, to the latter, it is most probable that a judicious administration of mercurial aperients, or alteratives with warm stomachics and aloetics might have accomplished a cure, since we see that castor oil, the only remedy used as an aperient, was productive of partial benefit, and after the use of the emetic was singularly useful in forwarding the cure. The alternation of diarrhoea with constipation, in such affections as the present, does not contra-indicate the treatment either by purgatives or emetics. Andral has recorded some cases of the successful treatment of bilious diarrhoeas by emetics.²

In this case we observe, also, a chronic affection of the respiratory organs supervene upon that of the stomach, accompanied by a convulsive cough. I have detailed in a subsequent part of this work many cases where affections of the lungs have succeeded to those of the stomach of the inflammatory kind. Those morbid states of the stomach, however, which consist in a disordered state of its secretions are not less productive of disease in the respiratory apparatus.

These affections of the organs of respiration may exhibit themselves in various forms; in acute pains in the chest, resembling those of pleurisy; in various morbid conditions of the respiration, which may be hurried or irregular; in cough; in frothy, mucous, or bloody expectoration, to so great an extent as to lead to the belief that they are actually dependent on organic disease of the lung.

CASE 3.—A mason, aged twenty, resident in Paris for a year, felt, during the last fifteen days, a pain under the left breast; it was increased by percussion and strong inspiration. He had no cough and breathed freely. For the last ten or twelve days he had some purging; his tongue was covered with a thick yellowish coat; he had no fever.

¹ J. B. de Larroque, op. cit., 2me Section de l'état saburrel des premières voies, &c., ch. 1., Observation 5me.

² Clinique Médicale, &c., by Spillan, p. 709, Case 60.

The day after, the 8th of May, he took twelve grains of ipecacuanha and a grain of tartar emetic. He vomited once a great quantity of bile and thick mucus.

On the 9th the pain of the side was entirely gone; the tongue had become clean.

On the 10th the diarrhoea had disappeared. The patient was perfectly restored.

A new circumstance presented itself to us in this case, namely, the administration of an emetic whilst there was diarrhoea, and the cessation of this diarrhoea after the vomiting.

This slight disease presents several traits of resemblance to an affection described by Stoll under the term of "biliary pleurisy": loss of appetite, bitter taste in the mouth, spontaneous vomiting, thick coating of the tongue, purging, and at the same time a fixed pain in a point of the thoracic parietes; lastly the rapid disappearance of the stitch in the side, and the other symptoms after the employment of an emetic.¹

CASE 4.—A widow aged fifty-six years, who had previously enjoyed the best health, gradually lost her appetite. She had a frequent disposition to vomit, and constantly threw up her food, mixed with a considerable quantity of tenaciousropy mucus. The tongue was coated, the mouth bitter, the abdomen full, and slightly tender on pressure; the bowels were confined; the stools, when passed, hard and dry. At the same time she suffered from a considerable difficulty of breathing; the respirations were drawn with great difficulty, accompanied with a strong whistling noise, as in some asthmatic patients. She was unable to lie down or sleep, and passed the night in her chair.

This patient experienced a temporary relief from injections, but the stomach derangement, and that of the respiration, soon became as violent as before. She was now recommended to take two scruples of ipecacuanha with one grain of emetic tartar. This produced an enormous discharge of biliary-mucous fluids: the stomach was relieved, the breathing more free; she slept. Several relapses, though by no means to the primitive degree of complaint, succeeded. These were subdued by the alternate use of emetics and aperients; and in a short time the patient became perfectly convalescent.²

CASE 5.—A little boy, aged ten, previously in good health, gradually lost his appetite, and was occasionally sick. The tongue was loaded with a thick fur, but offered no traces of increased redness; either on the borders, the apex, or the papillæ. He complained of pain in the epigastric region; but there was no heat in this situation; neither was it sensible to pressure. The bowels were alternately relaxed and confined; the stools were offensive, green, and thin. Some time after the commencement of these gastro-intestinal symptoms, he began to be harassed with incessant

¹ Clinique Médicale, Spillan's translation, Case 59, p. 708.

² Stoll, Ratio Medendi.

cough, which tormented him night and day. He was hardly free from it a moment; it continued week after week. The child emaciated, and appeared to be in the last stage of an organic disease. It was evident that the cough was gastric, for the lungs, on the most repeated and careful examination, afforded no evidence of any morbid action. Still, however, the nature of the gastric affection was misconceived: it was supposed to be inflammatory. Leeches were applied day after day; they relieved the cough, gastric symptoms, vomiting, &c., for a time, but in a few hours they returned with increased intensity. He was now treated with emetics. Immense discharges of mucus mixed with bile were thrown up; the cough diminished, the sickness left him. The administration of a few mercurial aperients completely restored the patient.

This case, very similar to several related by M. de Larroque, is very instructive. It shows us, as some of the preceding ones do, a disease, in many of its features, resembling chronic inflammation of the stomach; yet we find it does not yield to antiphlogistic treatment. We see here the patient wasting with total loss of appetite and occasional sickness, with pain in the region of the stomach, which assumes all the features of an organic affection, yet quickly relieved by the discharge of a quantity of bilio-mucous fluids from the stomach and first passages. In pure inflammatory disease of this organ, accompanied by vomiting, food only is rejected, the mucous membrane of the stomach being dry. In the forms of disease of which we are speaking, the patient generally vomits quantities of bile and mucus, which for a time relieve him. This is the gastrorrhœa of Andral, itself one form of secretory irritation.

We notice, in the history of this case, the effects of bleeding. For a few hours after the application of leeches the symptoms were ameliorated, but they invariably returned with greater intensity the next day; so that, in fact, the patient was always rendered worse by them, and they were always more deleterious, as they were accompanied by a greater loss of blood. Precisely the same effects took place in all the patients treated in this way by M. de Larroque who were ultimately cured by emetics and aperients.¹

CASE 6.—A married lady consulted me for an affection of the stomach which had harassed her for some years, and which, at its first commencement, had been relieved by blue pill and warm aperients. These remedies had now ceased to afford her relief, at least it was so transitory and partial that it could hardly be called relief. She suffered, at the period of her consulting me, from constant nausea, occasional fits of vomiting, which discharged large quantities of slimy sour mucus, not food, and came on chiefly at those periods when the stomach was empty. There existed a feeling of pain and constriction across the epigastrium, which was hot and slightly

¹ See Cases 1, 2, 3, 4, and 5, of the treatise of M. de Larroque, *De quelques maladies abdominales, &c.*, Sec. 2d; *De l'état saburrel des premières voies, &c.* Page 255, et suivantes.

tender on pressure; in addition to these symptoms, there was a teasing cough and some diarrhoea. The tongue was not contracted but coated, and inclined to redness.

Believing that, in this case, the disease was combined with, and dependent upon, a state of hyperemia, or active congestion, if not an inflamed state of the mucous coat of the stomach, ten leeches were applied over the epigastrium, and the patient was recommended to take the mist. cretæ with hydrocyanic acid, with a view of absorbing and correcting the acidity of the secretions. These remedies afforded considerable relief, and for a time the patient was tolerably well. The local depletion had entirely removed the epigastric pain and constriction, the patient ceased to vomit, and was no longer tormented with nausea or vomiting of mucous discharges. Some time afterwards she became again ill, with the same symptoms. Leeches now afforded no relief; she was constantly sick; uneasiness and weight existed in the epigastrium; the tongue was not so red as before, and the symptoms of increased determination of blood to the coats of the stomach did not appear strongly marked. I should mention that aperients now rather increased the complaint than at all relieved it; they brought on distressing looseness when administered in very small doses. I now determined to administer an emetic, and consequently two grains of the tartar emetic were given. A large quantity of slimy mucus, mixed with bile, was vomited; the sickness disappeared, with the weight in the epigastrium, and diarrhoea; the patient was restored to a degree of health she had not for some time enjoyed.

Remarks.—This case is an example of secretory irritation of the stomach accompanied by increased fulness of blood in its mucous coat, upon which, most probably, the increased quantity and morbid state of the secretions was dependent. It was evident from the effects of remedies that, on my first seeing this patient, such was the case: hence the success of the treatment. This case presents several symptoms which do not correspond with a state of ordinary inflammation—the character of the discharges by vomiting, and the period of their occurrence, viz., when the stomach was empty, and not after a meal. Still we find symptoms which lead us to suppose that an undue fulness of blood in the vessels and coats of the stomach was present; such are heat, pain, and tenderness in the epigastrium. The indications of treatment in such forms of combination are, to diminish the fulness of the vessels of the stomach, to improve the qualities of its secretions, and to lessen its irritability. For this purpose I know of no plan of treatment more efficacious than that detailed in the management of this case, in the earlier periods of the disease. The existence of diarrhoea precludes the use of aperients; for I have constantly found, in such forms of disease, that they readily produce hypercatharsis, however mild they may be. The mist. cretæ with hydrocyanic acid is the best remedy I know of in such states; it frequently affords the patient vast relief.

When I last saw this patient the secretory irritation appeared uncombined with hyperemia, and I then ventured to use an emetic: it was of great service. These remedies, however, cannot be used with too great caution; since many forms of inflammation in the stomach are so insidious that they may escape an uppractised observer. They should only be used when the disease is most perfectly uncombined with hyperemia or inflammation, and then not till all other remedies have failed; since we find many examples of their exhibition, in different forms of irritation of the stomach, to have produced fatal inflammatory disease. When any form of irritation exists in the stomach, it appears more prone to become inflamed from the exhibition of stimulants, either medicinal or dietetic, than if no such irritation existed. Hence, many diseases of this organ purely nervous or atonic in their commencement, are rendered in the sequel inflammatory.

I have shown that secretory irritation of the stomach exists with two totally opposite pathological conditions of its mucous coat: one in which this membrane is of its natural and healthy colour, or even paler than natural; and a second in which it exhibits marks of active congestion or inflammation. The last case detailed was of the latter character, at least in its commencement. I shall now bring forward a case related in the Dublin Journal of Medical Science for July, 1837, which well exhibits the latter form of disease, and shows us how careful we should be in our examination of the patient before determining upon the plan of treatment; since a disease evidenced by symptoms closely resembling each other may depend upon two states of irritation in the organ affected, of totally opposite characters, and requiring different modes of treatment.

CASE 7.—A woman, named Hutchinson, was admitted into Sir Patrick Dun's Hospital on the 26th of March, 1820, complaining of headache, pain in the left side, nausea, and soreness of the throat. These symptoms increased, with constant retchings, waterbrash, heartburn, and hysterical paroxysms. On the 15th of April food only remained a quarter of an hour on the stomach; an acid fluid was discharged in quantities of a dark coffee-ground colour, with burning heat of the stomach, excoriation of the mouth and fauces, and obstinate costiveness. She received no benefit from the treatment, which consisted in a mercurial course pushed to salivation, and bleeding. In fact, the remedies appear to have done harm: the vomitings continued: she was pale, but not emaciated. In 1823 her disease is thus described by Dr. Graves: "The fits of vomiting last from ten to fourteen days, recurring at intervals of about five weeks; the attacks preceded and accompanied by acute pain, and tenderness in the epigastrium. When she swallows, it is, for the most part, instantly rejected, and her sufferings continue day and night, without intermission. Quantity of fluid amounting to several basinfuls daily rejected; so acrid as to excoriate throat, tongue, and fauces: with a constant exudation of blood from the

whole inner surface of the mouth. This fluid often contained a large proportion of mucous flocculi of a dark colour, which imparted to the whole the appearance of being mixed with a blackish colouring matter." In 1829 a seton was placed over the stomach, which at first gave vent to a yellowish fluid, but subsequently to a large quantity of a fetid inky or dark-blue fluid. Whilst the seton continued to discharge the vomitings ceased, but on its being dried up they returned, and the patient could not be prevailed upon to have a new drain opened. She was then treated with repeated blisters over the part, cupping, leeching, or general bleeding, with injections, and calcined magnesia in cinnamon water: the carbonate of magnesia always gave intense pain when substituted. These remedies acted well for three years, and the attacks were lessened to three or four in the year. Very small doses of calomel and opium were tried instead of magnesia, which seemed to have lost its effect; a few grains caused salivation in two or three days, and the relief was remarkable and immediate. Some aperient pills and soda water (after its effervescence had subsided) then kept the bowels free and checked the vomiting, which generally ceased or lessened as soon as they acted regularly.

She died suddenly, after drinking part of a glass of whisky. On examination after death the mucous membrane of the stomach was found intensely inflamed, the cardiac orifice especially, which was of a deep red colour; pyloric orifice quite sound. Duodenum highly inflamed, its mucous membrane red and rough. A quantity of creamy mucus adhered to the mucous membrane of the duodenum and jejunum, bloody effusion under the mucous membrane in spots, which were of a dark colour; and in some situations bloody mucus. Ascending and descending colon highly inflamed; transverse arch not so much so; bladder and rectum healthy.¹

Remarks.—This case presents some peculiarities which demand particular attention; they relate to the duration of the disease, its character, and mode of treatment. I have shown, in that part of the subject of this book which treats of "Affections of the Stomach characterised by Derangements of its Sensibility," that secretory irritations of this kind will sometimes take place under the influence of mere nervous irritation; and Case 4, page 41, affords a remarkable example of this. In the example before us, however, the morbid state of the secretions was evidently combined with inflammation, at least in the latter years of disease, though, perhaps, not strictly dependent upon it: I certainly think not. The best plan of treatment that could have been adopted would have been to have given her large quantities of chalk with morphia or hydrocyanic acid, or the ponderous carbonate of magnesia with the sub-nitrate of bismuth and morphia; at the same time to have applied small

¹"Case of long-continued Vomiting, &c., attended by some Remarkable Circumstances," by C. P. Croker, M. B., &c. in the Dublin Journal of Medical Science for July, 1837.

numbers of leeches to the epigastric region; to have followed them up by blisters, the surfaces of which should have been dusted with the muriate of morphia. We have not, in such instances, to treat merely an inflammatory disease, but, combined with inflammation, a peculiar morbid condition of the secretions, which as often appears uncombined with inflammation as it does with it. I am inclined to suppose that the inflammation itself may be the result of the constant irritation kept up by such acrid secretions upon the mucous coat of the stomach, containing as they most commonly do, in such instances, large quantities of free hydrochloric and acetic acids. I refer the reader for further detail on this subject to the remarks to Case 4, page 41.

OF GASTRORRHœA.¹

A morbid condition of the stomach has been described, under this title, by Andral and Roche, which consists in the secretion of an excessive quantity of mucus from the lining membrane of the stomach. This secretion may be merely increased in quantity, or, in addition to this, it may present various alterations in its chemical composition.

Anatomical characters of the disease.—Andral thus describes them: “On opening bodies, we commonly find a thick layer of adhesive slimy mucus exhaled on the surface of the mucous membrane of the stomach, whilst this membrane does not present the least traces of inflammation. Thus, we find gastrorrhœa existing apart from any inflammatory action; but again, in certain circumstances, it succeeds to it: and here the mucous membrane of the stomach comes under the influence of that law in pathology in virtue of which all inflammations of mucous membranes, when arrived at a certain period, assume the character of a simple flux. We observe this in the mucous surfaces of the bronchiæ, of the urethra, and of the vagina. In some cases, also, the augmentation of the secretion of the mucous membrane of the stomach is dependent on, or coincides with, a true inflammation.”²

Gastrorrhœa may appear, however, in other conditions of the stomach beside those specified by Andral; and hence we occasionally find it accompanying purely nervous diseases of the stomach, as gastralgie and others. It is then, as in the instances in which it succeeds to, or is combined with, inflammation, not a disease, but a symptom, requiring, it is true, a particular mode of treatment, but not one to be adopted apart from, and without regard to, the primitive affection with which it is combined. It is only to be considered a primitive morbid state when it exists without any

¹ “Catarrh Chronique de l’Estomac,” Roche.—Dictionnaire de Médecine et de Chirurgie Pratique. “Flux Muqueux de l’Estomac,” Andral—Cours de Pathologie Interne.

² See Cours de Pathologie, &c., p. 84, et suivantes.

appreciable vascular or nervous irritation, and as such it is commonly met with.

Symptoms.—These are to be sought for in the stomach itself, and in the sympathetic affections of other organs. In patients labouring under gastrorrhœa we find the epigastric region sometimes indolent, at others, hot and tender; weight and constricting pains exist in the stomach, and a nausea, varying in its duration and the period of its occurrence: it may come on after meals or between them, may continue for an hour or two, or be present during the whole day. In many persons this nausea is relieved by eating, particularly of high-seasoned dishes; and it only again recurs when the period of digestion is finished. One of the most common attendants upon this disease is a vomiting of quantities of adhesive slimy mucus; this commonly takes place early in the morning, and many persons are unable to take food till the stomach has discharged the mucus secreted during the night. Again, the vomiting comes on at various periods during the day; but its most ordinary appearance is when the stomach is empty, between meals, and not immediately after them. This vomiting may continue for a long period, and not appear to be attended with any serious consequences. I have known it occur daily for months, and the patient preserve the appetite and not grow thin.

The tongue is generally broad, pale, and flabby, or loaded with a thick fur. It may assume a red appearance, and become contracted, if the disease be combined with vascular irritation or inflammation. Constipation may be present, or the patient harassed with a teasing diarrhoea; sometimes these states alternate one with the other.

The pulse is scarcely affected in the simpler forms of this affection, and the sympathetic irritations, with the exception of cough, which is commonly an attendant symptom, are not so well marked as in other forms of gastric disease.

In many forms of gastrorrhœa the secretions do not offer any marked change in their character; but there are other conditions in which they are intensely acid, and contain large proportions of acetic and muriatic acids. For examples of these forms I refer the reader to Case 4, page 41, for an example of this combination with a nervous affection of the stomach; and to Case 7, in the last section, for a similar combination with inflammation.

Gastrorrhœa is a disease peculiar to adult age, and hence its causes are to be sought for in circumstances which act upon us at this period, and which do not influence the constitution of the child or the youth, in whom it is never or very rarely found. These causes are, moral impressions, and an over-stimulating or too relaxing a diet. I have frequently noticed that anxiety, or strong mental impression, or excessive bodily fatigue, would produce this affection in persons liable to it. Roche assures us that it is more frequent in persons addicted to the use of wines or spirituous liquors, particularly those who are in the habit of taking them

fasting. In such cases the stomach, whose irritability and tone are, in a great measure, destroyed, does not inflame under the repeated action of stimuli, but assumes another form of irritation in secreting, sometimes to an enormous extent, fluids, of the character of which we have been speaking.

The *treatment* of gastrorrhœa must be varied to suit the particular form it assumes, and the nature of its combinations. Should it appear as a primitive affection, uncombined with either nervous or vascular irritation, it commonly gives way to warm aperients, followed up by bitters and the mineral acids. In some instances purgatives are totally useless, particularly when diarrhoea is an accompanying symptom; then emetics are often found signally beneficial, as the cases detailed by Stoll, Andral, De Larroque, Roche, and myself, sufficiently prove. Roche has recommended opiates and magnesia, calomel, the balsams of tolu and copaiba. If the superabundant secretion be dependent upon, or associated with, morbid conditions of the sensibility of the stomach, the latter symptoms will demand our first attention; and in most instances of this kind neither emetics nor violent aperients are admissible. In such cases the combination of magnesia or chalk with calumba bismuth or morphia; are most useful. I have generally found the prepared chalk, given with the hydrocyanic acid or morphia, more useful in such states than almost any other remedy.

When the disease is manifestly combined with inflammation or hyperemia, our first indications are to remove the local determination of blood, to correct the morbid states of the secretions by such mild remedies as those recommended above, and, when the inflammation has subsided, to administer freely the mineral acids or quinine, with a view of correcting the disposition to a recurrence of the disease.

M. Réné Prus and Andral have recommended the daily exhibition of opiates in some forms of gastrorrhœa in which habitual vomiting was present. The practice, in their hands, appears to have been successful. I have commonly seen one single dose check a vomiting which has been daily present for weeks.

Besides its customary follicular and mucous fluids, the stomach secretes air, a certain quantity of which is constantly found, but which, in various states of the economy and of the stomach, sometimes accumulates to so great an extent as to render this symptom a special object of attention. This, like most of the other symptoms indicative of either lesions of function or structure in the stomach or its coats, may occur in every possible condition of the mucous membrane, and also when the vascular and nervous systems of the stomach are in two opposite conditions of derangement. The accumulations of air in the stomach are sometimes so great that the degree of distension produced by them contracts the cavity of the chest by pushing upwards the diaphragm; and hence we observe various changes from the natural character of the breathing, and irregularities in the action of the heart. This disposition

to the excessive secretion of air must be treated in relation to the exact pathologic condition of the mucous membrane upon which it appears to depend. If a symptom of a nervous affection it may depend either upon atony or erethism of the nerves of the stomach; we may find it, also, equally present with an increased or diminished quantity of blood. This distension from gaseous or aeriform accumulation is, to many persons, most distressing, but it gives way with the particular morbid state upon which it depends. In some instances it is cured by leeches, blisters, or warm aperients; in others, yields only to quinine and the preparations of iron.

CHAPTER VII.

ON THE INFLUENCE OF THE STOMACH UPON OTHER ORGANS.

I.—*On the Influence of the Stomach upon the Liver.*

The function of digestion is performed by the concurrent action of the secretions of the stomach, and the fluids poured out by certain glands into the first portions of the alimentary canal. These glands are the salivary, the pancreas, and the liver. For the perfect digestion of food it is necessary that the substances taken as aliment should exercise a certain degree of stimulus on the coats of the stomach, to enable it to throw out a secretion sufficiently powerful and plentiful for their digestion. The degree of the solvent qualities of the gastric fluids secreted during digestion is in direct relation to the stimulating character of the food, as the researches of Drs. Prout and Beaumont, Tiedemann and Gmelin, Lauret and Lassaigne, have sufficiently established. If the stimulating character of the food pass a certain point, a degree of irritation is produced, which assumes the inflammatory form, and which determining an undue quantity of blood into the mucous coat of the stomach, reacts upon the heart, quickens its pulsations, and determines a temporary febrile state of greater or less intensity, and of longer or shorter duration. To this morbid state Andral has applied the term "gastric hyperemia;" among the French generally it is termed "embarras gastrique," and by the English "indigestion." Both the latter terms, however, are vague and indefinite, and may be applied to many morbid states in which fulness of blood is not a pathognomonic character of the disease. The writers of the French physiological school consider this condition of the stomach as a first and evanescent form of inflammation; and many modern writers of the English school admit the inflammatory form of indigestion, which has become permanent from a too frequent

repetition of the causes which have determined, in the first instance, this form and degree of gastric irritation. Such is the state of things as far as the stomach is concerned; but, from the intimate connection of the stomach with other organs, the nature and peculiarity of those connections, and the character of its functions and sympathies, we find that, in a great majority of instances, the irritation once produced is not limited to the stomach, but is transmitted, in a manner about to be mentioned, to other organs. The first organ which demands our attention in this enquiry is the liver. The liver is more immediately connected with the stomach by similarity of function than any other organ, though its actions are not limited strictly to the secretion of bile. Hence, the greater the demands made upon the powers of the stomach during digestion, the more is the secreting power of the liver augmented. Increased secretion rarely goes on without an increased determination of blood to the secreting organ; from this circumstance an undue secretion of bile is accompanied generally by a local determination of blood to the liver. This is another primitive morbid state, and to it Andral has applied the name of "biliary hyperemia."

It is difficult to conceive of any impressions being made upon our organs, except through the medium of the skin without or the mucous membranes within. Hence the impression of a sapid substance of the tongue determines an increased secretion from the salivary glands; and in the same manner the presence of stimulating or irritating substances on the mucous surfaces of the stomach and duodenum necessarily induce an increase in the secretion of the bile. The mode of transmission of irritation from the stomach and duodenum to the liver is evidently in that way which John Hunter named "continuous sympathy"—*i. e.* from the mucous surfaces of the stomach to those of the duodenum, and thence through the common and hepatic ducts to the liver.

"The liver," says Broussais,¹ "is only affected consecutively to the stomach, the small intestines, and the duodenum." Thus the increased secretion from this organ is produced, during the continuance of inflammatory or hyperemic affections of the mucous surfaces of the stomach and duodenum, in the same manner as during the act of digestion—by irritation or stimulus of these parts spreading thence to the liver. "When the pyloric portion of the stomach or the duodenum are in a state of inflammatory irritation, the liver is more influenced than when this irritation exists in any other part of the alimentary canal."² By referring to the chapter on the co-existing pathologic conditions of these two organs, we shall see that cancerous diseases of the pylorus and liver are commonly found together. The explanation given by Broussais of the causes of hepatic diseases, although borne out by facts, and receiving the

¹ Commentaires des Propositions de Pathologie, Prop. 149, 150.

² Broussais, Op. cit.

support of many pathologists, does not fully or completely explain the mode in which a diseased or irritated stomach influences the liver. M. Ribes, whose opinions have been corroborated by Andral and Cruveilhier, discovered that inflammatory irritation of the stomach was sometimes propagated from the stomach to the liver, through the medium of the veins. It may be readily conceived how excitement habitually produced in the digestive organs may extend by continuity of tissue to the mucous membrane of the excretory bile ducts, and thence to the substance of the liver. Again, it would be possible that, under the circumstances of habitual stimulus, the irritation might extend from the stomach and intestines to the liver, through the medium of venous inflammation.¹ M. Ribes thinks that in gastro-intestinal inflammations, the veins which arise on the surface of the mucous membrane of the stomach would first be attacked by inflammation, and that this might extend from the small mesaric veins to the trunk of the vena portæ, and thus to the substance of the liver. Andral and Cruveilhier have both met with cases confirming this view. The same opinions are supported by Broussais in his *Cours de Pathologie et de Thérapeutique Générales*² Persons in the habit of consuming large quantities of food keep the mucous surfaces of the stomach constantly turgid with blood. This state is the first form of inflammation, and explains the remark made by Portal, that great eaters have invariably large or hypertrophied livers. In such cases the tongue is generally dry and foul, its papillæ developed, and the epigastric region hot and tender.

II.—*On the Physiological Action of the Stomach upon the Lungs.*

The chemical functions of respiration, and the function of digestion, which is strictly chemical in one part of its process, go on under the influence of nerves derived from the same source, which are principally destined to the stomach and lungs. Owing to this anatomical fact, we sometimes find that irritation of the gastric portion of the vagus nerve commonly produces a corresponding irritation in the parts of this nerve which supply the lung; hence we have hurried breathing, cough, and various disturbances of the function of respiration, consequent upon stomach affections, whether these consist in inflammation, in nervous irritability, or from the accidental presence of a worm in the stomach. These functional disturbances are sometimes followed by actual states of disease. Thus, Andy³ has reported a case of pleurisy caused by the presence of a worm in the stomach; De Larroque⁴ one from large

¹ See Andral, *Clinique Médicale*, by Spillan, p. 918.

² Tome iii., p. 302.

³ *De la Génération des Vers*, p. 130.

⁴ *De Quelques Maladies Abdominales qui simulent, &c., Maladies de Poitrine.* Paris, 1831.

doses of the oxymuriate of mercury; Lombard¹ has recorded several cases of cancer of the stomach in which the whole pulmonary branches of the pneumo-gastric nerve were enlarged to a considerable extent; Lobstein² others in which the branches of this nerve were inflamed, either in consequence of, or simultaneously with, a similar condition of the mucous coat of the stomach. From these facts it appears that the integrity of the lung may be affected, in the first instance, by mere irritation of the gastric extremities of the pneumo-gastric nerve, which may not be limited to this state, but actually progress into disease of the inflammatory kind, or terminate in change of structure of the nervous trunk itself. The respiration is generally quickened after a hearty meal, at the same time that the circulation is accelerated. Cough, at other times absent, is commonly then brought on. This arises from the mechanical distension of the stomach by food or the gases evolved during the progress of digestion, which, pressing upwards the diaphragm, and impeding the free admission of air to the lungs, thus becomes a source of irritation during the period it lasts. The immense distension of the stomach by wind in hysterical and hypochondriacal persons thus acts upon the chest. Irritating or indigestible food, by troubling the functions of the stomach, are productive of the same consequences; hence the importance of a properly regulated diet in diseases of the lungs, and hence the inutility of certain medicines, as juleps, syrups, balsams, and oleaginous mixtures, given in affections of the chest. These compounds, being acted upon with difficulty by the powers of the stomach, are sometimes actually hurtful to the affection of the lung, from the gastric irritation they create. Andral has remarked their inutility in phthisis, and De Larroque details many cases of their positive injury, in increasing the cough and pectoral disturbance they were given to allay. In all pulmonary diseases the medicines, as well as the food, should be easily digestible.

Irritation of the diaphragm, the result of gastric derangement, becomes a frequent source of disorder to the function of respiration. De Larroque records a case where its peritoneal surface was inflamed from long continued stomach disease. "Les melancholiques éprouvent un resserrement opiniâtre de la poitrine, et respirent avec peine, quoiqu'ils aient les poumons parfaitement sains. Chez eux, l'irritation du diaphragme est tellement augmentée, qu'ils éprouvent des tiraillements incommodes dans le creux de l'estomac, et dans les hypochondres, et que la respiration est gênée ou très précipitée."³

No symptom is more commonly attendant on an inflamed or irritated state of the stomach than a dry cough. If we peruse the work of M. de Larroque on those abdominal diseases which resem-

¹ "Clinique Médicale de l'Hôpital Civil et Militaire de Genève."—Gazette Médicale de Paris. Janvier, 1837.

² De Nervi Sympathetici Fabricâ, Usu, et Morbis, Commentatio, &c.

³ Portal, Cours d'Anatomie Médicale, tome iv., p. 135.

ble, produce, or keep up, diseases of the chest, we shall at once see that many of the forms of cough which are supposed to be pectoral are actually of gastric origin. The first effect of this constant and repeated irritation of the chest, occasioned by violent fits of coughing, is, to produce a certain degree of congestion of blood in the mucous membrane of the bronchiæ, and subsequently in the pulmonary vesicles. This is the first stage of pneumonia, bronchitis, and their consequences; and hence many of these affections, at first the result of mere irritation of the gastric branches of the pneumo-gastric nerve, produce irritation of the lungs, followed by cough, by congestion of blood, inflammatory or organic disease. This is the mechanism of the production of pulmonary diseases which have their origin in the stomach. The dissection of patients dying from gastric diseases accompanied by cough shows us the lungs or bronchiæ in this state; a congestion of blood in the mucous membrane in the latter, and also in the substance of the former.¹ The bilious pneumonia spoken of first by Stoll, and noticed subsequently by Andral and Bonillaud, has evidently this origin. In this manner are irritations which commence in the nervous system succeeded by congestion and inflammation, thus are the "lesions of innervation followed by those of circulation," and in this manner may a simple indigestion, apparently so trivial, lay the foundation of organic disease of the lungs.² The most common source of pulmonary irritation commencing in the stomach is evidently nervous irritation, which, determining an increased quantity of blood into the coats of the stomach, terminates in congestion or inflammation. The affections of the mucous membrane of the lungs, which succeed to those of the stomach, are, again, produced under the influence of that law which disposes diseases to spread by similarity of tissue. Thus, we hardly ever see a protracted affection of the mucous coat of the stomach without an irritable or inflamed state of that of the lungs. Those parts of the body which are of a similar anatomical organisation have a natural tendency to sympathise with each other more freely than others in which no similarity of organisation exists; they also exhibit a tendency to be acted upon by the same irritating causes. Hence we observe that those persons who exhibit a natural tendency to intestinal irritation, under the form of repeated diarrhœas, arising from slight dietetic errors, have at the same time a similar tendency to irritation of the mucous surfaces of the lungs, which often terminate in phthisis, of which this intestinal irritation is the first indication. This is also well exemplified in the sympathies of the mucous membranes of the lungs with those of the digestive passages, and also in the frequent and simultaneous origin of disease in both,

¹ See Broussais, *Traité de Physiologie appliquée à la Pathologie*, tome ii., p. 70, et suivantes.

² See the Remarks of Portal, Op. cit., tome v., p. 194, and the corroborative testimony of Lieutaud, Morgagni, and Storck.

as noticed by Copland and others. The same cause which produces a gastritis will, at the same time, produce a bronchitis; the continuation of inflammation of the mucous membrane of the stomach for a certain period is, in many individuals, followed by acute or chronic disease of the same parts in the lungs, as my own cases, with those of Andral, Larroque, and Broussais, sufficiently prove.¹

These are the modes in which the sympathies existing between the lungs and stomach are exercised, and these sympathies may be called forth from several sources of irritation in the stomach; from the presence of foreign bodies, as worms, from indigestible food or medicine, or from varied forms of actually existing disease.

There are, however, other ways in which the stomach influences the lung; these, however, are rather mechanical than vital. Thus, the distension of this viscus by an undue quantity of food, the gases evolved during the progress of digestion, the vast collections of wind which occur in hysterical and hypochondriacal persons, by pressing upon and contracting the cavity of the thorax, and irritating the diaphragm, become a fruitful and a frequent source of derangement in the functions of the organs of respiration.

III.—*Of the Physiological Action of the Stomach upon the Heart.*

The heart, like the lungs, is influenced by the stomach in the customary integrity of its functions, in two ways, mechanically and vitally. The distension of the stomach by food or gases, contracting the cavity of the chest, and preventing the free discharge of blood from the right side of the heart, naturally deranges the action of this organ: and hence, from this cause, we observe laboured, quickened, or irregular action of the heart, frequently come on, where the stomach is free from complaint, after a meal. The quantity of food which may be taken without exciting the heart's action is variable, and may depend, in many instances, upon the size of the stomach, no organ being so variable in its capacity as this. I have been frequently consulted by a gentleman who presents none of the physical signs of disease of the heart in whom a tea-cupful of common groat gruel will excite the action of the heart to a very distressing degree, whilst a less quantity does not do so. The position of the body after a meal, when the stomach is full, has a marked effect upon the action of the heart. Portal² remarks that in persons whose occupations lead them to work with the stomach pressed against a desk or counter—as literary men, and some mechanics—or those who sit with the body doubled for

¹ Lallemand details some instructive examples of the simultaneous and consecutive occurrence of disease in the serous membranes of the abdomen, the chest, and the head. See Recherches, &c., de l'Encephale, Lettre 2me. Des tissus de même nature, remplissant des fonctions semblables, soumis à la même influence, doivent être également exposés à contracter la même maladie—Page 155.

² Op. cit., tome viii., p. 101.

wards—as tailors or shoemakers—the stomach is pressed, by the position of the body, against the diaphragm; the capacity of the chest is consequently contracted, and the passage of the blood through the heart impeded. To this circumstance this author attributes frequent dilatations of this organ. Precisely similar effects are produced by tight lacing, which, preventing the usual motion of the stomach forwards when it becomes distended by food, forces it upwards against the diaphragm, and, preventing the free discharge of blood from the heart, gives rise to palpitations and irregular actions, which sometimes terminate in organic disease. It is this mechanical distension of the stomach which becomes so dangerous to persons affected with organic diseases of the heart; and we commonly observe it to produce a fatal embarrassment of its actions. We often see persons carrying about them these diseases die suddenly, from this cause, after a full meal. I have for some time attended a gentleman who at first consulted me for distressing palpitations, which came on after his meals. On examining the heart physical signs of valvular disease, evidenced by a strong “bruit de soufflet,” were detected. By depriving him of stimulants, and limiting him to a small quantity of food at a time, the palpitations have disappeared, although the physical signs of disease remain. It is thus that we may retard or prevent the fatal termination of diseases, if aware of their true nature, and the influence of other organs upon the one diseased. I have seen several other patients, in precisely similar states, relieved to such an extent by the same means, and occasionally leeching the epigastrium and region of the heart, as occasion might require, that they have fancied themselves perfectly free from complaint.

The first effect of eating, as we have before said, alluding to the physiological action of the stomach upon the liver, is to determine an increased quantity of blood to the mucous coat of the stomach, and also to all the organs concerned in the function of digestion. This determination of blood is produced by the food stimulating the stomach. If a hearty meal be taken, the action of the heart is accelerated to a greater or less degree, its pulsations are quickened, the heat of the skin is slightly augmented, and a temporary degree of arterial excitement is produced, which continues whilst the period of digestion lasts. The degree of this excitement depends upon the degree of irritability which the stomach naturally possesses, and also upon that with which the heart is endued: we shall see, by reference to the cases in the pathologic part of this work, that individuals vary extremely in the degree of irritability of these two organs. So far digestion does not affect the heart or arterial system, further than by producing a slight, but regular, increase of their pulsations. Under the influence, however, of an undue quantity of food, of too stimulating or indigestible character, we find a degree of irritation set up, from which the mucous coat becomes still fuller of blood, the heart more excited than in the first state, and its beats hurried or irregular. In many individuals we may observe that

the pulse constantly intermits whilst the period of digestion lasts; and in others the increase of the beats of the heart during the continuance of this function amounts to a distressing state of palpitation. In both these instances careful examination by auscultation can detect no evidence of disease in the heart, although it appears, from the ease with which its functions are made irregular and its rythm disturbed, that a predisposition to disease exists. Some physiologists, amongst whom are Broussais and Andral, attribute this irritability of the heart to a preternatural thickness of its walls, or an over-excitable state of the nervous system distributed to it. How often are such symptoms the first indications of hypertrophy, of softening, of valvular disease, or affections of the investing or lining membranes of this organ!

In many persons who die of gastric diseases, we notice the pericardium intimately adherent to the muscular substance of the heart; in others, this substance pale and softened; whilst in a third series varied forms of disease in its lining membrane and valves are present.

What we observe to take place during the period of digestion, when the stomach is healthy, also occurs from other modes of excitement, and also during the progress of many forms of disease; amongst the former, moral causes play a prominent and important part. In the various forms of gastritis, or gastric hyperemia, occurring idiopathically or in conjunction with various morbid states of the economy, particularly those noticed at the commencement of various forms of fever, we observe the heart thus excited or irregular. I have detailed many peculiar forms of these affections in the subsequent pages. That these irregular or excessive actions of the heart and arteries are dependent upon gastric irritation, and not upon the general morbid state of the economy existing at the time when they occur, is evident from their commonly subsiding under the use of local depletions from the epigastrum, whilst the general disease, as fever, runs its usual course. The heart, when once rendered tumultuous or irregular by the irritation existing in the stomach, reacts upon this organ through the medium of the liver, and produces congestion of blood in the whole venous system of the abdomen. When the heart's action is rendered irregular and hurried from gastric irritation, or from other causes, the first effect produced is an impediment to the free passage of blood through its cavities. This may arise from contraction of its cavities from spasm during the fits of palpitation, as some physiologists seem disposed to admit, or from other causes. Whatever these may be, we find that, during the continuance of the irregular action of the heart, there is an impediment offered to the passage of blood through it as long as the fits of palpitation or irregular action last. Hence the sense of suffocation, the inability to lie down, the difficulty of breathing, and other symptoms which attend them; and hence is it that we see the symptoms dependent upon actual organic disease of the heart aggravated during the continuance of gastric irritation, of

which we shall see many examples under this division of our subject. The impediment offered by the heart to the passage of blood through it produces a mechanical congestion of this fluid in the liver, and consequently in the veins of the mucous surfaces of the stomach and duodenum. With the accumulation of blood in these organs we commonly find an exalted state of the sensibility ; the hepatic region is commonly full, and that of the epigastrium hot and tender. It is the production of this state of stomach during these states of the heart's action that renders the exhibition of certain remedies, in such circumstances, inadmissible.¹

IV.—On the Physiological Action of the Stomach upon the Brain.

The mass of nervous matter existing in the cranium, and that assemblage of ganglia and plexuses placed in the epigastric region, behind the stomach, to which Lobstein has applied the term "Cerebrum abdominale," bear a strict relation to each other, and are connected by certain sympathies which it is important to note, both in health and in disease. The sensibilities of the nervous centres of the epigastrium appear to be excited chiefly through the medium of the mucous surfaces of the stomach ; and the sympathies which connect this portion of the nervous system with others are exercised, in a great majority of instances, through the means of impressions made upon this organ. "The stomach," says Broussais, "is a curious organ ; it is destined always to be irritated."² He should rather have said, it is destined always to be stimulated ; for if stimulus amount to irritation, the condition of the organ has passed from a state of health to the first commencement of disease. All organs require a certain degree of stimulus to preserve them in action ; without this stimulus they languish and become weak, with an excess of it they become irritated and diseased. Independent of the external stimuli which act upon our several organs, as light upon the eye, sounds upon the ear, sapid bodies upon the tongue, &c., every organ requires that a certain proportion of healthy arterial blood be distributed to it, in order that it may properly act ; and whether this blood be furnished in excess or diminution, in a greater or less quantity than is necessary to the due fulfilment of the functions of the organ, a diseased condition is the result. This is precisely the case with the stomach in many of its primitive morbid states, and their influence upon the brain. I have given some cases in this work illustrative of the symptoms of diseases of the stomach subsequent to large losses of blood from the uterus, &c., in their character precisely resembling inflammatory diseases, yet which yielded quickly to the exhibition of iron and

¹ The two hundred and twelfth aphorism of Broussais, and his commentary upon it in his *Commentaires des Propositions de Pathologie*, merit particular attention on this point.

² *Physiologie appliquée à la Pathologie.*

other tonics. The brain, from the peculiarity of its constitution, receives its stimuli from many sources; from moral impressions, and from the external stimuli, which affect it through the medium of its organs of sense. The great nervous system of the abdomen, however, which, in conjunction with many physiologists, I must consider as the agent of sensibilities peculiar to itself, receives its impression chiefly through the medium of the mucous surfaces of the stomach, not considering it, as Bichat did, the seat of the passions, nor admitting, with regard to it, any moral impression further than is conveyed to it through the medium of the brain. We have here two centres of sensation, the brain and the nervous centres of the epigastrium, to which all sensations, both external and internal, are referred. These may affect one centre alone, or be transmitted from one to the other. The phenomena produced by hunger and repletion are the first which demand our attention. After the stomach has been deprived for a certain time of the presence of food, it contracts upon itself, its mucous membrane becomes pale, and the circulation in this organ, as well as in the general system languid; the same effect is produced upon the brain. This organ now receives sufficient blood for the due performance of its functions, and no more; the mind is clear, the operations of the senses lively and acute, and the intellectual powers can be most powerfully and judiciously exercised. If the abstinence be prolonged, another effect is produced: the mucous surfaces of the stomach become dry, red, and inflamed, and a degree of mental distress is induced proportionate to the physical suffering of the patient. I have remarked conditions of the stomach resembling this produced from excessive discharges of blood during abortions, or after delivery. In some of these instances, which I have detailed, there has been intense acidity, and acute pain in the epigastrium, which was hot, tender, and highly sensible. These cases have, as I have before stated, yielded quickly to nutritious diet and tonics; during their continuance, anxiety and restlessness were present. In one lady, who had aborted with alarming haemorrhage, profound coma succeeded the discharges; the skin was perfectly insensible; she exhibited no sensibility to pain, unless the epigastrium were pressed; this occasioned great uneasiness, evidenced by her countenance, and convulsive motions of the limbs. After a moderate meal, taken in a perfectly healthy state of the stomach and economy at large, there is a general sentiment of ease and mental quietude induced; if annoyances had previously irritated us this has a wonderful effect in allaying them, and restoring the mind to its customary tone.

The circulation is now slightly accelerated, the force of the heart's action increased, and a disposition to drowsiness, and aversion to the exercise of the mind comes on. If the meal be full it induces, in many people, a frontal headache during the period of digestion.

When the sensibility of the mucous surfaces of the stomach becomes deranged from fulness of blood (hyperemia), from chronic

inflammation, or from other causes, the influence upon the brain becomes much more varied and marked. In such instances we have occasionally, after a full meal, a loss of some or the whole of the mental powers; in some, depression; in others, fits of excitement. The functions of the senses become impaired or exalted; some see spectres or visions, and others are profoundly stupid. In many instances apoplexy, epilepsy, or effusion, succeed to the gastric irritation. Of all these forms of sympathetic affections of the brain I have seen, and shall detail, examples.²

"It is notorious," says Cabanis, "that in certain states of the digestive organs we are more or less capable of exercising the intellectual faculties." In the sympathetic affections of other organs which accompany diseased conditions of the lining membrane of the stomach, varied conditions of the mental powers are some of the most frequent. In some persons where the powers of the mind are naturally acute, they are singularly depressed after a full meal; some lose the faculty of thinking at all, others become deficient in judgment, and in others, again, memory is quite lost. I was called to the case of a gentleman, in the course of last year, who was suffering from a subacute inflammatory affection of the stomach, who completely lost the faculty of memory after taking a teacupful of food; yet this patient was remarkable for his mechanical genius. A less portion of food did not impair his mind, which invariably became more powerful and clear from leeching or fomenting the epigastrium.

So intimate is the connection between the brain and stomach, that it is rare not to see some change produced in the functions of the former by every impression made upon the mucous membrane of the latter; these changes, however, vary with the natural constitution of the mind, and the varied states into which it is thrown by the circumstances which act upon it.

Extreme mental depression is one of the most frequent attendants upon chronic or subacute inflammation of the stomach, or upon that congested or excited state of its mucous membrane which follows the ingestion of aliment bad in quality or excessive in quantity. Sometimes these states of mind continue during the whole progress of the gastric disease; at other times they succeed to, or are aggravated by, a meal; and, again, I have frequently seen

¹ Les maladies de l'estomac changent, troublent, intervertissent entièrement l'ordre habituel des sentimens, et des idées. Des appétits extraordinaires et bizarres se développent: des images inconnues assiegent l'esprit; des affections nouvelles s'emparent de la volonté; et ce qu'il y a de plus remarquable, c'est que souvent l'intelligence peut acquérir plus d'énergie, d'élévation, d'éclat, et l'âme se nourrir d'affections plus touchante ou mieux dirigées. Ainsi donc, les idées riantes ou sombres, les sentimens doux ou cruels, tiennent alors directement à la manière dont certains viscères abdominaux exercent leurs fonctions, c'est à dire à la manière dont ils perçoivent les impressions.—Richond, Influence de l'Estomac sur la Production d'Apoplexie. Paris, 1824.

them induced by strong aperient medicines. Fits of great mental excitement, on the contrary, occasionally succeed to diseases of this character; and where the disease is protracted, in mental constitutions so predisposed, it frequently terminates in confirmed insanity. I have detailed one or two remarkable instances of this kind in my paper "On Stomach Diseases and their Sympathies," in the Dublin Medical and Chemical Journal for September, 1835. In that paper I have also related the case of a gentleman who had intense headache dependent upon an inflammatory condition of the stomach, who imagined that the paroxysms of pain were produced by a black bird flying against his head.

The influence of the stomach upon the brain is not confined merely to the waking state; it is equally marked during sleep. Persons thus suffering we find constantly troubled with dreams of an extremely vivid and intense character; in fact, so perfect are the scenes of many of these dreams, that they appear to the patient rather the impressions of a waking hour than the delusions of a dream.

Let us examine for a moment the state of the organs in which these functional derangements take place. Richon and others assure us that, if the brains of persons dying from gastric diseases be carefully examined, we shall find numerous pathologic changes; the arachnoid thickened or injected, separated from the pia mater by effusions of serum, pus, or blood; the sinuses and veins of the substance of the brain fuller of blood, and more numerous than in the healthy state; and the brain itself commonly altered in its texture, being sometimes harder, at others softer, than in the natural condition.

If we carry our enquiry to the examination of the functions of organs during life, we shall find that increased vascular excitement is commonly determined in the heart and great vessels, and consequently in the brain, by diseased conditions of the stomach; strong beating in the epigastric region, increase of force though not always of frequency, in the heart's actions, and a similar excitement in the carotid and temporal arteries. This state of the circulation is accompanied by increased heat of the head, and all the symptoms become aggravated during the accession of those depending upon the affection of the stomach. During fits of the deepest mental despondency this increase in the force of action in the arterial system is commonly present, vascular excitement by no means bears a strict relation to mental excitement in these forms of disease; such is the different effect produced by stimulus upon brains or minds differently organised.

I must consider, as I have before said, the mucous membrane of the stomach to be the seat of a peculiar sensibility, upon whose healthy condition is dependent the integrity of all the other organs of the economy. Many of the functions of this sensibility are, however, not perfect without the concurrent action of the brain. Thus, some physiologists, as Broussais, Desruelles, &c., consider the feel-

ing of hunger to be expressed through the medium of the nerves of the stomach; whilst Georget, Braschet, &c., contend that we are made sensible of the wants of our organs through the medium of the brain. There can be no question of the real truth of the case, which is that the sensation of hunger is produced by the want of stimulus which the coats of the stomach, in a perfectly healthy condition, require; and that this sensation is propagated from the nervous centres of the epigastrium to the brain. A similar error and controversy has arisen about the seat of the passions; some, as Bichat, placing them in the epigastrium, others in the brain. Here, again, it is the sensation transmitted to the brain through the medium of its senses, and thence to the nervous centres of the epigastrium, that produces that sudden pain and those analogous sensations we sometimes feel in the stomach from strong moral impression. The application of a healthy stimulus is required, to keep the nerves of the stomach in proper action, and, this done, the functions of the brain remain healthy. If this stimulus be wanting to the stomach, if it be morbid, if it be in excess, if it be in diminution, the brain instantly is aware of it through the sympathies which connect these two nervous centres. Hence the varied condition of the intellectual powers, the loss of mind, or of its separate parts or faculties, their excess, their derangement, the displacement of their consent and unity of action, which we observe during morbid states of the sensibility of the epigastric centre. The stomach is the seat of an internal sense which holds and keeps in a state of equilibrium the actions of the brain, and which can only transmit healthy sensations to the brain as long as itself is healthy. The first influence of one upon the other is nervous, the second vascular.

CHAPTER VIII.

ON THE INFLUENCE OF MORBID STATES OF THE STOMACH UPON THE ORIGIN, PROGRESS, AND TERMINATION, OF DISEASES OF THE LIVER.

I.—*On the Primary Symptoms of Disease of the Liver.*

The symptoms which mark the commencement and progress of hypertrophy of the liver are sometimes continued through a long series of years without attracting in any marked manner, the attention of the subject of them. He is constantly suffering, but never seriously ill, till the occurrence of severe vomiting, diarrhœa, swelling of the legs, or an attack of jaundice, attract his serious notice and alarm. The patients who, in after or middle life, fall

victims to hepatic diseases, have generally been subject from youth to great irritability of the stomach. I have closely questioned persons who have come under my care with marked hypertrophy of the liver in advanced or middle life, and have invariably found that they could not recollect the period when they were not the subjects of some form of indigestion. These persons have been females as well as males, and the symptoms of gastric irritation have developed themselves under circumstances and at periods so early that they have appeared to depend entirely upon the natural organisation of the stomach, and not to have been called into existence by the prolonged or excessive use of stimuli of any kind. "There are sometimes," says Andral, "persons to be met with who have the stomach constantly irritable." These persons have commonly a sallow countenance, a tongue habitually loaded and dry, and seldom pass many days without having nausea or diarrhoea.

In enumerating the causes which produce diseases of the liver, Ferrus and P. H. Bérard, the latest writers on the subject, quoting the authority of Portal, attribute simple hypertrophy or enlargement of the liver to an over-stimulating diet, the liver being found invariably in persons thus indulging; the constant irritation kept up in the stomach by large quantities of food received into it determining an increased quantity of blood into all the organs concerned in digestion, which lays the foundation for most of their diseases.

The state of stomach, however, which is the greatest source of irritation to the liver, is that in which there is a permanent excess of blood in its mucous coat, whether under the form of mere hyperemia (excess of blood), or an actual state of chronic or acute inflammation. As the mere evanescent form of irritation caused by an embarrassed digestion of food excessive in quantity or of bad quality tends to disturb the functions of the liver, and at length to terminate in its chronic inflammation and enlargement, so far greater must be the evil when this is permanent, as a degree of complaint in the mucous membrane such as I have described would make it. "Facts abound," says Bérard, "to prove this state of stomach to be the real origin of a vast majority of diseases of the liver." We need not refer to the writings of Andral, Louis, Cruveilhier, Broussais, Bonet, or a host of others, for corroborative testimony, not a testimony drawn from opinions, but from the rigid and cold observance of facts. To pass in review the symptoms which mark the invasion of hepatic disease, will almost be to recapitulate those which are indicative of a diseased condition of the mucous coat of the stomach; for, apart from the physical signs furnished by the liver itself, we have hardly any other symptoms which are not proper to chronic inflammation of the latter organ.

Pains in the region of the liver, shooting to various parts of the chest, to the arms, shoulders, and even to the fingers, are commonly attendant on the incipient stages of disease of the liver. These pains may be fixed in the right hypochondrium or in the epigas-

trium; they may be more acute in the shoulder, in the neck, between the scapulæ, or on any point of the surface of the chest; they may be lancinating and acute, or merely a dull, heavy, uneasy sensation. In persons of bilious temperament subject to that form of morbid increase in the formation of bile which Andral has described under the term "*hypérémie bilieuse*," these pains, in whatever situation they may be seated, are constantly recurring every time the secretions of the liver become deranged or unduly augmented; in other terms, whenever the patient becomes bilious, or is troubled with nausea or diarrhœa. At these times the patient frequently experiences a dragging or sensation of weight in the region of the liver, which coexists with the pains felt in various parts of the thoracic parietes.

These pains bear a great similarity to those which are dependent upon disease of the stomach alone, where no affection of the liver can be detected or is supposed to be in existence. I have shown, when speaking of the symptoms of inflammatory irritation of the stomach, that pains in various parts of the chest are sometimes the chief symptoms by which such affections are characterised. Andral mentions the case of a man who died from cancer of the liver, in whom the pains extended down the arms into the hands. I have now a lady under my care with confirmed chronic inflammation of the stomach; among other symptoms she has constant pain in the right arm, shooting down to the third and fourth fingers of the hand, the sensibilities of which are considerably impaired. Another lady, who has the physical signs of incipient hypertrophy of the liver, and who is for weeks in perfect health, is subject to pains in the shoulder and neck so acute, whenever the secretions of the liver become impaired or unduly augmented, that she is totally unable to move the head from side to side. In the case of a second lady, of about twenty-two years of age, who has laboured under the symptoms of chronic inflammation of the stomach for two or three years, but who has never suffered from biliary affections, the neck will become fixed in the same way whenever the stomach affection becomes aggravated: the pain and stiffness of the neck disappears as the stomach disease gives way. The pains which have been described by Annesley, Andral, Ferrein, and Portal, as symptomatic of disease of the liver, and which coexist with distinct physical signs of affections of this organ, are also found to attend the various forms of neuralgic and inflammatory affections of the stomach, and are commonly met with in such diseases when no affection of the liver, ascertainable by the usual means of diagnosis, can possibly be shown to exist.

Of whatever character diseases of the liver may be, whether they consist in changes of nutrition merely, in enlargement or diminution of its substance, in chronic inflammation or its consequences, no symptoms are so invariably attendant upon the progress of such diseases as those which are connected with derangements in the functions of the organs of digestion.

The forms of disease in the stomach which attend the incipient stages of disease in the liver are of various kinds; they may consist in mere hyperemia of the mucous membrane of the stomach, an increase of blood in its mucous coat, characterised by the usual symptoms of an attack of indigestion of the inflammatory kind, the more common attendants on which are nausea, flatulence, distension, tenderness in the epigastrium, loss of appetite, a loaded tongue, with occasional vomiting, and a bitter, sour or clammy condition of the mouth. Sometimes these symptoms are occasioned by what is termed "a bilious attack," a morbid increase in the secretion of the liver without any assignable cause; the impression of which secretion on the mucous surfaces of the stomach and duodenum occasions the derangements observed at these periods in the functions of the stomach. "Dans plusieurs circonstances, sans qu'il y ait hépatite ou hypérémie du foie, sans qu'il y ait gastro-entérite, la seule maladie qu'existe est une augmentation inexplicable dans la sécrétion biliaire."

¹ Andral, Cours de Pathologie Interne, p. 215. Bonet (Monographie complète des Maladies du Foie) admits two primitive conditions of hepatic derangement, the result of irritation in the stomach; these are, a morbid increase in the secretion of the liver, not amounting to an inflammatory condition; and a true inflammatory state, the symptoms of which are not well marked; on account of its slight character. The first state, that termed, in common language, biliary derangement, is one in which the natural function of the liver is exalted, under the influence of an irritating cause; and though the symptoms of inflammation are frequently absent, they are again, in a great number of instances, present, and the increased secretion appears dependent upon a slightly inflamed condition of the organ, or at least upon one in which a preternatural fulness of blood is determined to the liver: hence the name, given to it by Andral, of "bilious hyperemia." Sometimes this form of disease is unaccompanied by local symptoms, and is only evidenced by the sympathetic affections it produces; in other instances the symptoms of increased determination of blood are present; the tongue is dry and red, the skin hot, and the epigastrium and right hypochondrium painful and tender to the touch. We find this form of disease ushered in from the operation of two classes of causes, from dietetic errors and from moral causes, which, first affecting the stomach, secondarily act upon the liver. In these circumstances, whatever be the nature of the irritating cause acting upon the liver, its most prominent feature is an inordinate secretion of bile: and hence we see complete jaundice produced frequently without the symptoms of inflammation being urgent, or even well or strongly marked. This condition of the liver is produced, in many persons, from the most trivial exciting cause; from a slight mental impression, or from errors in diet hardly perceptible. As some have the stomach habitually sick (of which I have given instances in other parts of this work), so have others the liver constantly disposed to irritability; and hence a succession of irritations, frequently repeated, at length induce confirmed hypertrophy or chronic inflammation. In some persons we find a constant state of indigestion of the inflammatory kind, the tongue always coated and red, the epigastrium always tender: the mucous coat of the stomach is here habitually in a congested state. The same pathological condition exists in the liver in the circumstances of continued biliary derangement. "Il y a des individus chez qui le foie est, dans l'état normal, plus volumineux, plus irritable, plus susceptible de devenir malade, que chez les autres hommes. La gastro-

These attacks of stomach disease are perpetually occurring, in some persons without any errors or excess in diet. They may continue for some time, even for years, without appearing to be accompanied by, or to be productive of, any other affection ; at length, however, pain and dragging, with weight and uneasiness in the right hypochondrium, are complained of, and on carefully examining the region of the liver we discover a distinct tumour, tender to the touch. In a second form, the affection of the stomach which accompanies the primary symptoms of hepatic disease assumes more distinctly the form of a pure gastritis, or gastro-enteritis. Instead of having merely nausea, flatulence, a loaded tongue, with loss of appetite and confined bowels, we have violent vomiting, with considerable fever, a dry red tongue, a sallow countenance, with scanty turbid urine, occasionally diarrhoea to a considerable extent, with pain and great tenderness in the epigastrium.

These symptoms of inflammation of the stomach attract chiefly the patient's attention ; the slight uneasiness in the right side is lost sight of in the more acute symptoms which have been added to it.

In tracing the symptoms of incipient disease in the liver which are found in the derangements of the organs of digestion, we find every variety in the latter affections, from mere flatulence to periodical attacks of acute gastritis. To give instances of these varieties :—

A gentleman had complained of flatulence for many years; it distressed him exceedingly after taking food. No hepatic disease was suspected, but he has now a distinct enlargement to some extent in the right hypochondrium. The only disturbance of his digestive organs is the distressing flatulence, which still continues.

A second gentleman, of middle age, has been subject to flatulence, nausea, and great fulness after food, with considerable pain. Of late years these occasionally terminate in acute pain in the epigastric region, with vomiting and purging of thin frothy matter, resembling barm. He has distinct enlargement, with induration, of the liver.

At other times the digestive functions are constantly disturbed, but their derangements are not of so acute a character. A lady, of middle age, who has suffered from the symptoms of inflammatory indigestion for some years, and who, for the last twelve months, has had some tenderness in the right hypochondrium, is seldom a day free from nausea, and once or twice in the week has slight diarrhoea: the nausea seldom terminates in vomiting. The tongue is generally dry and slightly coated, with the edges and point contracted and vividly red.

entérite la plus légère suffit alors pour déterminer tantôt une sécrétion abondante de bile, tantôt une véritable hépatite et il n'y a pas de raison pour que celle-ci, une fois développée, ne s'accroisse indefiniment."—Bonet, Op. cit. p. 126.

The varieties in the affections of the organs of digestion which accompany the primary forms of hepatic diseases, are those which depend on an excited state of the vascular system of the stomach, which may be reduced to three divisions. 1st. The condition characterised by mere hyperemia; 2d. A state of chronic or sub-acute inflammation; and 3d. One of acute inflammation. In persons addicted to the excessive and continued use of alcoholic liquors, the symptoms of hepatic enlargement and inflammation are quickly ushered in, subsequent to an attack of acute inflammation of the mucous membrane of the stomach. Again, these attacks of acute inflammation sometimes supervene upon a long-continued state of chronic disease.

The rapid development of hepatic diseases under the use of alcoholic liquors is attributed by Andral, in some instances, to the stimulus which the spirit gives to the coats of the veins of the stomach, thence exciting in them a pure state of inflammation, which extends to the portal system and to its ramifications in the substance of the liver. This inflammation of the veins of the stomach explains one way in which irritation is propagated from the stomach to the liver, and the manner in which disease in one organ produces a corresponding morbid state in another. The Clinique Médicale contains accounts of the dissections of two cases in which this pathologic state was found.

In examining the bodies of patients who have died from gastric inflammations and their consequences, I have frequently noticed the immensely distended state of the veins of the sub-mucous cellular coat of the stomach; they are sometimes as much distended with black, grumous, coagulated blood, as though they had been injected. I have occasionally noticed the vasa brevia in this state. All cases of gastric inflammation which terminate fatally are not, however, attended by this condition of the venous system of the stomach.

II.—*On some of the Symptoms attendant on advanced stages of Diseases of the Liver.*

The rational and physical signs which denote the existence of hepatic diseases, consisting in hypertrophy or chronic inflammation, may continue for a great length of time without affecting in a very serious degree the constitution of the patient, if he be tolerably guarded, aware of the true character of his disease, and the nature of its complications with affections of the digestive organs. The symptoms which accompany the more advanced stages of disease in the liver are drawn as much from the affections of other organs which, during the long continuance of disease, have become associated with the primitive affection, as from the liver itself. Whether hypertrophy and chronic inflammation of the liver, or any of its component parts, be diseases consecutive to, and produced by, continued irritation of the stomach and duodenum (an opinion to

which facts would seem to lead us) or not, it is a matter of certainty that active or passive hyperemia, or pure gastritis in its varied forms, almost always complicates disease of the liver in its more advanced states. The inflammation of the stomach thus set up produces its own influence on the integrity of other organs; and thus the latter stages of hepatic diseases are accompanied by varied morbid conditions of many organs, among which the disease of the liver itself sometimes becomes secondary. The organs which chiefly suffer, and whose affections thus accompany and add to the difficulty of the treatment in such cases, are the stomach, the heart, the lungs, and the brain. Sympathetic diseases in one or other of these organs are seldom altogether absent.

III.—*On the State of the Digestive Organs in the latter stages of Disease of the Liver.*

In another part of this treatise, we have shown the pathologic condition of the stomach and intestines, as recognised after death, in diseases of the liver. We shall now pass in review the symptoms of diseased conditions of the digestive organs which are observed, in the progress of diseases of the liver, during life. In persons perishing from hepatic diseases, it is a very rare thing to find the stomach and intestines free from lesion in some variety or another; and it commonly happens that pathologic changes of the same character as those observed in the liver are found, at the same time, in the stomach. Thus, as far as the subject of cancer merely is concerned, Bérard has proved, from his researches, that the disease commonly co-exists in the two organs.

The most common affections of the digestive functions observed during life in diseases of the liver are, attacks of acute or sub-acute gastritis. Sometimes these attacks supervene upon a state of chronic gastritis which has accompanied the affection of the liver from its commencement. Again, we find that violent vomiting, with fever, and a vividly red and contracted tongue, with much pain and tenderness in the epigastrium, occur from slight dietetic errors, and in many instances without such errors having been committed. After these attacks have been subdued by appropriate treatment, we observe a constant disposition to their recurrence. In these instances the stomach may suffer secondarily from that general febrile state induced in the system by the disease of the liver, or from the sympathies existing between the two organs; or, again, the gastritis may be a mere exaltation of that vascular irritation which primitively existed in the stomach, and from which the hepatic disease originally sprung.

IV.—*On the Symptoms observed in Disturbances of the Circulation.*

The circulation and its central organ, the heart, do not, in all

cases of confirmed disease of the liver, afford any marked symptoms of peculiar disturbance of their functions, except that mere increase of frequency in pulsation which is observed more or less in all feverish or inflammatory diseases. There are, however, certain cases in which great peculiarities are observed in the action of the heart during the course of hepatic diseases, which it becomes necessary to notice. These disturbances may vary from an increased and tumultuous impulse of the heart to great irregularities in its action, which would almost lead to the supposition that the organ itself was diseased. Occasionally the pulse presents a great degree of sharpness, and the stethoscope applied over the heart detects an unusual force in its impulse. In one case of this kind, which commenced with a series of dyspeptic symptoms two years before its fatal termination, the pulse offered a peculiar sharpness, and auscultation detected a strong, tumultuous impulse of the heart; the pulse never intermitted, although the two sounds of the heart were lost in one strong pulsation. This patient had general adhesion of the pericardium, with softening of the substance of the heart; abscess of the liver, an aggravated state of gastritis, with a highly congested state of the veins of the sub-mucous coat of the stomach, which were filled with black grumous blood.¹ This patient had ascites. I have at the present moment under my care a gentleman with an immense hepatic tumour, accompanied by ascites. The pulse offers the same peculiar sharpness, and the action of the heart is inordinately strong. In this person there are periodical attacks of acute gastritis or gastro-enteritis; for the vomiting is frequently accompanied by severe diarrhoea, and the stools are sometimes of a bloody cast. During the prevalence of the gastric affection, the symptoms of disturbance in the action of the heart were always much more acute, occasionally to the extent of requiring local abstraction of blood from the region of the heart in order to subdue them. In the section on the influence of the stomach upon the heart, I have shown that there is great reason to suppose that, in many instances, organic changes in the heart are the result of continued gastric derangement. It is certain, as Broussais has remarked, that a state of softening of the heart is commonly the result of prolonged gastro-enteric disease, in which the liver and the spleen frequently offer the same pathologic change. Portal has shown how frequently affections of the heart are complicated with diseases of the liver.²

¹ Adhesions of the pericardium with the substance of the heart are not unusually found on dissection after death from diseases of the liver, or of this organ and the stomach conjointly. Among others, the case of a fisherman of Venice related by Morgagni (Letter 5, Obs. 19), is worthy of attention. This man had some old-standing dyspeptic symptoms, during an aggravated condition of which he died suddenly. On examination, the stomach, intestines, and liver, presented evidences of inflammatory disease; the pericardium was every where adherent to the heart.

² "De l'état du Foie après les Palpitations, &c.," Art. xii. Du Traité des Maladies du Foie.

In several instances of hepatic disease, however, the circulation is so much embarrassed, the pulse so unsteady, and the action of the heart so irregular, that, when those symptoms are observed to co-exist with anasarca or ascites, we are sometimes led to attribute them to valvular disease of the heart, independent of any other affection. An old lady, aged sixty, came under my care, in the latter part of last year, with all the symptoms of an organic affection of the heart. The pulse at the wrist was merely a tremulous motion of the artery, hardly to be called pulsation. Auscultation of the heart detected a tumultuous undulation, but no distinct rhythm or sound. The face was livid and swollen, and the legs anasarca; all food occasioned great pain, and was immediately rejected by vomiting; the epigastric and right hypochondriac regions highly sensible to pressure. On examination after death the liver was found greatly hypertrophied, pale, and hard; the stomach one mass of inflammation, its submucous veins much dilated, and full of dark coagulated blood; the heart healthy, as regards the disposition of its investing and lining membranes and the condition of its valves; its substance was very pale, and soft.

In addition to any organic changes which may exist in the heart, and which may complicate diseases of the liver, we may observe occasionally a most irregular condition of the circulation existing without any organic change in the heart itself. In the section on the influence of the stomach upon the heart, I have quoted a case from Cruveilhier,¹ in which the circulation was so unsteady, and the signs afforded by auscultation so seemingly certain, that an organic change was suspected in the heart. On examination after death the heart was found perfectly healthy, but cancerous disease existed both in the stomach and liver. I have there also adduced another case, from my own practice, in which great irregularity of the circulation was present; but dissection showed nothing but an enlarged and hard liver, with inflammatory disease of the stomach. Although these derangements in the heart's action are met with during the progress of diseases of the liver, still they are also found co-existing with various forms of disease of the stomach when the liver is perfectly healthy, or presents so little alteration that it cannot be supposed to influence materially the condition of the heart.

V.—*On the Symptoms observed in Disturbances of the Organs of Respiration.*

During the progress of hepatic diseases, we commonly observe that the respiratory organs deviate more or less from their natural state, whether these deviations are observed merely in functional derangements, such as hurried breathing or spasmodic cough, or in an actually inflamed condition of the lung, the pleura, or the bronchiæ. These disturbances result from the volume of the liver

¹ *Anatomie Pathologique du Corps Humaine.*

pressing upward the lungs and contracting the cavity of the chest, or from irritation propagated from the liver to the lung, independent of an increased bulk in the former. If we examine the cases detailed by M. de Larroque,¹ we shall find many examples of affections of the chest thus produced during the progress of hepatic diseases. The affections of the organs of respiration which accompany hepatic diseases are of various kinds; they may consist merely in a short dry cough, in continued fits of coughing without expectoration, or in cough followed by expectoration of frothy, mucous, purulent, or sanguineous matter.

A lady of middle age, the mother of one child, had been affected with constant dry cough, for some months, during the continuance of which she had emaciated much. The most repeated examination of the chest convinced me that all the organs contained in it were healthy. The conjunctivæ had a yellow tinge, the countenance was sallow, the tongue clean, but red, its papillæ injected and elevated. This lady had been subject to dyspeptic symptoms, with occasional vomiting, for some time. On examining the abdomen, a distinct tumefaction was observed in the hepatic region, extending downwards to some distance; it was tender to the touch; the epigastric region also hot and tender, and the seat of strong pulsation. The cough ceased from the application of several relays of leeches over the stomach and liver, and the patient recovered her usual health.

A second lady, whose case is mentioned by Larroque,² had a severe attack of gastritis. After the acute symptoms had disappeared, there remained daily vomiting, difficult digestion accompanied by flatulence, obstinate constipation, a dry, short constant cough with considerable difficulty of breathing, augmented to a sense of suffocation by taking food. On examining the abdomen, three months after the appearance of these symptoms, a considerable hepatic tumour was discovered, extending into the left hypochondrium, and downwards below the umbilicus. The patient complained constantly of her stomach; the cough seemed to arise from that point, or rather the irritation producing it. Every species of aliment, even simple gruel or broth, increased the uneasiness, the cough, and hurried breathing. This lady recovered under the use of bleeding and mercurial frictions.

These two cases are examples of diseases of the liver accompanied by functional derangements of the organs of respiration. Both the cases, however, appear to have commenced in affections of the stomach. The dyspeptic symptoms, depending evidently on inflammatory irritation of the mucous membrane of this organ, were severe during the whole progress of disease in both cases, and the symptoms observed in the disordered condition of the organs

¹ De Quelques Maladies Abdominales qui simulent, provoquent ou entretiennent, des Maladies de Poitrine.

² Op. cit., Obs. 4, p. 482.

of respiration appear to have depended as much upon the latter affection as upon the state of the liver. This will be more evident by referring to the chapter "On the Influence of the Stomach on the Respiratory Organs."

In some instances the symptoms observed in the chest, during the course of hepatic diseases, amount to actual organic lesions observed in an inflammatory condition of one or other of its contained organs. "A gentleman, forty-five years of age, accustomed to indulgence in the pleasures of the table, had been subject for some time to dyspeptic symptoms, which were shown in severe attacks of colic, preceded by obstinate constipation, and accompanied by a jaundiced and dry condition of the skin, with occasional pains in the right hypochondriac and epigastric regions. To these symptoms were added, some time subsequently, cough, with difficult respiration and expectoration of mucous, yellowish or gray sputa of bitter taste, sometimes streaked with blood; at the same time the tongue was coated, red at its point and edges, and the mucous membrane of the mouth and fauces inflamed, and a jaundiced tint upon the skin. The expectoration amounted to a pint in the course of the day. He had, also, severe bilious diarrhoea. The examination at this period of his disease detected the existence of a large hepatic tumour. Mucilaginous and anodyne medicines, with blisters upon the chest, were productive of no benefit in the alleviation of these symptoms; the uneasiness in the regions of the stomach and liver, with the fulness of the pulse, led to the application of leeches to the anus. After this the expectoration ceased to be bloody, and the diarrhoea diminished, but the pains in the regions of the stomach and liver still continued. Some time after, the expectoration suddenly ceased, and the patient sunk with the symptoms of effusion into the chest. On examination after death, the bag of the right pleura was found to contain about a pint of bloody serum. The inferior lobe of this lung was adherent to the diaphragm, through which it communicated with a large abscess which occupied nearly the whole substance of the liver, part of the walls of the abscess being formed by a portion of the lung itself. The mucous membrane of the stomach and colon were both in an inflamed state."¹

In examining the history of this case, we observe it to have commenced in symptoms of gastric disturbance, evidently of the inflammatory kind, thence progressing to the liver, and ultimately to the lungs. The progress of the symptoms is explained by the pathologic changes after death. It is thus that we often find diseases, which commence in mere symptoms of gastric derangement, terminate, in after-life, in others whose more prominent features mark the original affection to which they owe their origin.

Bronchial affections frequently make their appearance during an aggravated state of the symptoms of diseases of the liver, and the

¹Portal, Mémoires sur plusieurs Maladies, t. iii.

affections of the stomach which accompany them, and disappear when these symptoms are subdued by appropriate treatment. A gentleman, a free liver, indulging in the pleasures of the table, had suffered from symptoms of gastritis for many months, accompanying which he had a large hepatic tumour. The skin was jaundiced, the tongue intensely red, the epigastric region hot and tender, and the action of the heart inordinately strong. After a day of more than usual indulgence severe vomiting set in, with diarrhoea, cough, hurried breathing, and expectoration of muco-purulent fluid, which increased till he spat from two to three pints in the course of the day. Leeches were applied freely over the hepatic and epigastric regions, and occasional doses of blue pill and opium were given with the hydrocyanic acid. By this treatment the inflammatory symptoms were subdued, and with them the cough and expectoration also disappeared. It is an established fact that gastric irritation has the power of producing disease of the liver; and it is also certain that the irritation produced in the latter organ is frequently propagated to the chest, and is productive of many of its diseases, as pleurisy, pneumonia, and bronchitis; so that in many instances, we observe diseases of the liver, stomach, and lungs, coexisting as in the two former cases.

In the midst of many diseased organs, it is of importance to trace the commencement of the affection, and determine the relative importance of each in the mass of mischief: where the stomach presents symptoms of lesion, this organ always demands particular attention. Although, in the forms of disease of which we are speaking, the stomach is often the source of mischief, still there are other complications of diseases of the liver with those of the organs of respiration in which the stomach is found perfectly healthy. In many of these instances the inflammation commences in the lungs or their investing membrane, and is thence propagated to the liver. I have seen two instances of pneumonia terminating in abscess which have commenced in the inferior lobe of the right lung, and have ultimately involved the liver in the disease. In both these cases the stomach was healthy. Andral¹ has recorded another instance of this mode of extension of disease from the lung to the liver. Regnault² has also noted several instances of pleurisy producing hepatitis.

PARTICULAR CASES.

CASE 1.—Symptoms of indigestion of the inflammatory kind for twenty-five years.—Sub-acute inflammation of the stomach.—Hypertrophy, with sanguineous congestion of the liver.

In June, 1834, I was requested to visit Mrs. C.—. She was a delicate woman, and had laboured under severe dyspeptic symptoms

¹ Clinique Médicale, tome iv., Obs. 23.

² Mémoires sur les alterations, et l'influence du Foie dans plusieurs Maladies, et sur les moyens curatifs qu'elles reclament. Par P. G. R. Regnault.

for twenty-five years. During this period she had almost constantly pain and tenderness in the epigastrum, with occasional vomiting of food.

June 24, 1834.—The patient so weak as to be unable to sit up in bed. General uneasiness of the belly, which is tender on pressure in the right hypochondriac and epigastric regions; sensibility greatest in the epigastric. All food is constantly rejected; occasionally blood is thrown up. Bowels obstinately constipated. Abdomen full, but not tympanitic. Pulse small, sharp, easily compressed, but steady, and at ninety-five. Tongue dry and shining, and of a reddish-brown colour. Urine scanty; has not been voided till to-day for fifty hours. No cough or hurried breathing. Had epistaxis two days since; it has returned again to-day.

As the patient appeared to be sinking, she was ordered merely two grains of calomel and half a grain of opium to allay her distressing sickness, and to have a domestic enema.

June 26.—Gradually sinking; voided some blood by stool, and died in the evening. In addition to the symptoms above detailed, I learned, on to-day's visit, that the stools for some days past had been of a chalky whiteness. There had been occasional pain in the right hypochondrium, which region was hard and full. The greatest and most constant pain was always referred by the patient to the left part of the epigastrum.

Post-mortem examination, thirty-six hours after death.—Body not much emaciated, of a deep-jaundiced colour. The liver extended downwards nearly to the pelvis; upwards it was much enlarged, compressing the right lung. It extended across the epigastrium, and left hypochondrium, intimately adhering, by its peritoneal coat, to the spleen. It adhered also to the transverse arch of the colon. The gall-bladder was amalgamated, by thickened adhesions, to the liver. It contained two large gall-stones, as large as nutmegs; and a third, of the same size, was found in its duct. The internal structure of the liver was very dark; a good deal of dark-coloured blood exuded when it was cut into. The thoracic viscera presented no pathologic state worthy of note.

The cardiac portion of the stomach was highly vascular, studded with red points, and patches of an arborescent appearance, intensely red. The pyloric portion was one mass of pink injection, covered by a thick layer of bloody mucus. The mucous surfaces of the duodenum and small and large intestines were stained with bile, but otherwise healthy: the bladder full of dark-brown urine.

Remarks.—On looking back over the history of this case, we find the subject of it to have been troubled with painful and laborious digestion for twenty-five years, which symptoms were, in the onset, probably dependent upon a congested or active hyperemic state of the mucous membrane of the stomach. To relieve herself she occasionally drank gin or brandy, and lately had become a great taker of laudanum. Under this continued gastric irritation, there is no doubt that the enlargement and chronic inflammation observed

in the liver and its membranes commenced, and the disease of the stomach assumed the form of confirmed chronic gastritis. For the last seven months of the patient's life we find her constantly vomiting food, and often blood: this marks the invasion of a more acute form of gastritis. We find, in conjunction with the disease of the stomach, the liver hypertrophied to a great extent; the sequelæ of chronic inflammation in its peritoneal coat, and concretions in the gall-bladder: these evidently the consequence of some change in the character of the bile, dependent upon disease in the organ secreting it. The spontaneous occurrence of epistaxis in this case is worthy of remark, as hemorrhage of this character frequently occurs during protracted inflammatory diseases of the gastro-enteric mucous surfaces.

We observe in this case a mere enlargement of the liver, without any change in the density of its substance. These conditions of hypertrophy may also be attended with an increase or decrease of the density of the substance of the liver, under the form of induration or softening. On the former of these two states ascites is commonly attendant, though it does not exist in every instance. The attentive examination of the history of this case brings us to the conclusion that the disease of the liver was, in this instance, produced under the influence of the gastric irritation, which determined to all the organs concerned in digestion an increased quantity of blood. The details of this case very much resemble one in the Clinique Médicale, in which the patient sunk from hypertrophy of the liver six years after the use of extremely irritating medicines, which had disturbed his digestive powers to an extent which they had never recovered. In this instance, Andral considers that the enlargement of the liver was consecutive to the inflammation of the stomach, and the result of an inflammatory process.¹ The general principles of pathology likewise recognise increased determination of blood, under the influence of an irritating cause, as one source of the hypertrophy of organs. "Some enlargements of this character are owing to chronic determination of blood. In such cases the hypertrophy is sometimes confined to the tissue which was primarily irritated or congested, whilst, again, after the tissue originally affected has returned to its natural healthy condition, the adjacent tissues (or organs) retain a chronic form of disease, and become hypertrophied."² We may conceive of hypertrophy of the liver, in this form of disease, taking place much as that of the heart does from inflammation of its endocarde or lining membrane. In the same manner we daily observe true hypertrophy of the submaxillary chain of lymphatic glands to take place from chronic inflammation, or ulceration existing about the lips or lower parts of the face. I do not know an instance where this species of hyper-

¹ Clinique Médicale, by Spillan, Case 6, p. 940.

² A Treatise on Pathological Anatomy, by G. Andral, translated by Drs. Townsend and West, tome i., p. 224.

trophy, coinciding with gastritis or gastro-duodenitis, is not owing to a chronic form of hyperemia or inflammation. In some instances we find purulent collections in the centre of livers thus hypertrophied, or some parts of their structure completely disorganised. Generally, however, where this organ is hypertrophied to a great extent, it is harder and paler in its structure than in its healthy state. Where softening and abscess are the chief lesions the liver is not so much enlarged. A less acute degree of morbid action than that accompanying the second form of disease appears to be present in the first.

In some instances, affections of the liver are developed quickly under the influence of an acute or subacute attack of gastric inflammation, instead of being produced, as in the preceding cases, by chronic irritation of the digestive organs.

CASE 2.¹—Subacute inflammation of the stomach and bowels succeeding the sudden disappearance of a cutaneous eruption—Sudden appearance of disease of the liver—Tumour in the right hypochondrium.

A sempstress, aged 16, caused to disappear suddenly an eruption with which she had been troubled for some time. A few days afterwards a slight diarrhoea made its appearance, accompanied by pains in the stomach, total loss of appetite, and constant disposition to vomit. She was treated by emetics. The pains in the stomach and the diarrhoea continued, the sensibility of the epigastric region increased, and the distaste for food was carried to such an extent that the mere appearance of it produced an attempt to vomit. The menses being suppressed, she was now treated by emmenagogues for three months. Under this plan she still continued to get worse; emaciation proceeded rapidly, a jaundiced tint appeared upon the skin, the nausea terminated in periodical vomiting; whilst at the same time a regular paroxysm of fever came on every evening. Being examined by M. Bonet at this period of her complaint, he ascertained that, in addition to the stomach affection, there existed extensive disease of the liver. This viscus was so large that it extended three or four fingers' breadth below the false ribs, and formed a considerable tumour in the right hypochondrium. The patient sunk into an extreme degree of marasmus. The body was not examined.

Remarks.—Although, in this case, the body was not examined after death, the physical signs of hepatic disease succeeding to the gastric render it a matter of certainty that the irritation which first appeared in the stomach and bowels ultimately extended to the liver, under the influence of treatment calculated rather to exasperate than to allay the primitive disease. As these cases show that irritation of the stomach, whether acute or chronic, may ultimately extend to the liver and produce disease in that organ, and as the

¹ Bonet, Monographie complète sur les Maladies du Foie, p. 107.

history of the last case exhibits more particularly the fatal termination of such cases accelerated under the influence of a treatment calculated to keep up or increase the irritation already existing in the stomach, so the details of the following case will show that an appropriate plan of treatment, adopted with a view to the removal of gastric or gastro-enteric inflammation, co-existing with hepatic disease, will arrest the progress of the latter, even when it has proceeded to a great extent.

CASE 3.—Symptoms of chronic gastritis of long standing occasionally becoming acute—Scirrhouss hardness and great enlargement of the liver—Great relief afforded by exclusive attention to the stomach disease.

I have been occasionally consulted by a gentleman, during the last three years, for dyspeptic symptoms, attended with loss of appetite, pain and distension after meals, with much flatulence and occasional vomiting. I was sent for suddenly one evening, and found him labouring under an attack of acute gastritis. He had constant vomiting of sour and bilious fluids, with purging of thin white-coloured matter. Acute epigastric pain, increased to agony by pressure. Rapid, thin, unsteady pulse, cold skin, and an intensely red tongue. The constant recurrence of these symptoms without any assignable cause, led me to examine the hepatic region very carefully. I found it dull on percussion for a very considerable extent downwards, nearly to the ilium, extending across the epigastrium into the left hypochondrium, and nearly to the umbilicus. This space was occupied by a resisting tumour, which could be defined with great ease; it had a scirrhouss hardness, and an uneven tuberous surface, presenting to manual examination that pathologic state of the liver termed by Cruveilhier "Cancer by disseminated masses: hard variety."¹ After the subsidence of the acute attack, the epigastrium continued sensible to pressure when the patient was placed in the recumbent position; but no pain was experienced on hard pressure in this region when he leaned forward. Considerable pain followed the taking of food, accompanied by fulness, nausea, and distressing flatulence. The tongue coated posteriorly, vividly red at the point, edges, and on the uncoated surface; papillæ much developed. There was no cough, and the pulse was soft, steady, and hardly at all accelerated. The patient was put upon a strict milk and farinaceous diet, relays of leeches in small numbers, proportionate to the powers of the constitution, were applied every two days, and small doses of blue pill and rhubarb, with the ponderous carbonate of magnesia, combined occasionally with bitters and aloetics, were administered to obviate the costiveness, which was obstinate.

This plan was continued for four months, with hardly any vari-

¹ "Cancer au foie par masses disseminées; variété dure."—Cruveilhier, Anatomie Pathologique, 12me. livraison, p. 8.

ation. At the end of this period all the heat and pain in the epigastrium had disappeared, the emaciation, which had commenced, was arrested. The fulness of the bowels, which at one time I feared would have terminated in ascites, was reduced; they became soft, free from uneasiness, and acted freely without medicine. The appetite also was much improved. I recommended that the diet should be adhered to, and the bowels regulated occasionally by injections of warm water, with the addition of a little castor oil, if necessary, being unwilling to distress the stomach by any medicine whatever, if it could be avoided. The state of the liver, as far as it could be ascertained, remained the same.

Remarks.—This case is an example of the arrest of the progress of organic disease in one organ, by the removal, or at least the mitigation of the disease it produces in another with which it is nearly allied in function and sympathy. Here we have scirrhouss hardness of the liver, with an uneven tuberous surface, presenting all the features of disseminated cancer, with which is associated disease of the stomach, assuming at times the form of acute, and ultimately the symptoms of confirmed chronic gastritis. Diseases of this character are commonly treated with courses of mercury, sarsaparilla, and nitric acid; and what is the consequence? The patients continue to emaciate, and fall victims to this plan of treatment; if it had been different, their lives, probably, might have been prolonged for years. I have seen numerous instances of these forms of disease whether of the tuberous kind, simple hypertrophy, or chronic inflammation, in which the patients have sunk during courses of mercury. The evil appears to rest in considering the hepatic disease as a pure entity, over which mercury exerts some specific power, without taking into consideration the pathologic state which the disease of the liver produces in other organs, particularly in the stomach; the latter disease being much more serious and alarming and more certainly and speedily fatal than the hepatic which produced or is associated with it. The remark of Louis is here of great value, "That, during the course of any disease accompanied by febrile action, the gastric and gastro-enteric mucous surfaces are liable to put on a chronic or subacute form of inflammation, which is, in a great majority of instances, of actually more importance than the primitive disease, and which becomes the more immediate cause of the patient's death."¹ The detail of the above case exemplifies the truth of this remark, for we observe that, although no impression is made upon the hepatic disease, still the patient is restored to a tolerable degree of health from attention to the state of the stomach alone. I could multiply instances of this kind. I am at present attending a lady, in whom percussion indicates considerable enlargement of the liver, which produces periodical attacks of gastritis, during the accession of which she is alarmingly ill. A mild antiphlogistic plan, with

¹ De la Gastro-entérite, &c.

hardly any other medicine than the ponderous carbonate of magnesia with morphia, have hitherto succeeded in speedily restoring her, whilst the hepatic disease hardly appears to make any inroad upon her constitution.

The mere coincidence of inflammatory diseases of the stomach, duodenum, or intestines with diseases of the liver, whether these consist in simple hypertrophy, induration, softening, cancerous deposits, vascular turgescence, or inflammation and its terminations, would be a powerful argument against the employment of a treatment exclusively directed to the removal of hepatic disease, when this treatment generally consists in the employment of remedies decidedly hurtful to the affections of the mucous surfaces of the stomach and duodenum, and we recollect that the patients generally fall victims to diseases either primarily or secondarily established in the mucous surfaces of these organs.

If, by the careful examination of the history of diseases, the results of treatment, and post-mortem researches, we can establish any direct connection between the diseases of the two organs, the influence of one upon the other, or of each separately upon the economy at large, we may hope to arrive at a more rational and certain plan of treatment, and, consequently, one more successful than has yet been adopted.

The pathological researches of Andral, contained in the Clinique Médicale, extend to examinations of forty-five cases of various forms of hepatic disease of the mucous coats of the stomach, duodenum, and small and large intestines, but chiefly of the two former: and the forms of disease observed were chiefly chronic or subacute inflammation and its consequences. Gastritis almost invariably coincided with induration and hypertrophy, with softening and abscess of the liver. Nine cases of cancer of the liver are given; in five the same disease existed in the stomach, and in the remaining four aggravated chronic gastritis. Some cases detailed by Cruveilhier¹ are of the same character, who remarks that nothing is more common than to observe cancerous disease of the liver co-existing with the same disease in the stomach. Broussais,² Villela,³ and Bérard⁴ also notice the almost invariable connection of diseases in the two organs.

Having considered hypertrophy of the liver in conjunction with an inflamed condition of the mucous membrane of the stomach, we pass to the notice of more distinct forms of inflammatory disease in the liver, under the characters of true hepatitis and abscess.

¹ Anatomie Pathologique.

² Histoire des Phlegmasies Chroniques, t. 3, art. Maladies du Foie.

³ Lettre à F. J. V. Broussais, Histoire des Phlegmasies Chroniques, t. 3, p. 367.

⁴ Dictionnaire de Médecine, 2de édition, art. Maladies du Foie, par Ferrus, et P. Bérard.

CASE 4.—Gastro-enteritis—Softening and disorganisation of the liver in its left lobe.

In November 1834, Mrs. D. was placed under my care. She was mother of two children, and attributes the origin of her disease to exposure during the puerperal state. She had been ill two years, with daily vomiting of food, pain, weight, and distension in the epigastrium, with, during the latter part of her illness, purging of slimy and bloody fluids.

Nov. 11.—Constant vomiting, the stomach retains nothing taken into it. Four or five bloody evacuations daily. Great tenderness in the epigastrium, which region, with the hepatic, is hard and resisting. The tenderness exists, on pressure in other parts of the belly, which is full and tumid. Extreme emaciation. The lungs and heart afford no evidence of disease.

This poor lady died a few days after she came under my care; her state at that time rendering her recovery hopeless.

Post-mortem examination, twenty hours after death.—Liver much enlarged, the left lobe occupying nearly the whole of the left hypochondrium, and the right extending downwards many inches below the convexities of the ribs; its texture tolerably firm on its upper surface, the under breaking down every where under the least pressure of the finger, particularly under the surface of the left lobe; The peritoneum and great omentum generally pinky; no effusion of lymph or serum; no adhesions. Pyloric portion of the stomach uniformly red, with occasional clusters of deep red points; in others patches of vivid arborescence; a viscid mucosanguineous secretion covered the inflamed parts, with difficulty separated from the mucous membrane. The redness increased towards the pylorus, the whole of the duodenum of a deep florid red, as well as the jejunum, the red points approaching here to blackness, and the arborescence of a modena red. The membrane of the ilium slightly pink, but approaching pretty much to its natural state till near the iliocecal valve, where it was uniformly in a black gangrenous state; this appearance extended through the colon; small patches of blood were effused here and there. Gall-bladder distended with black viscid bile.

Remarks.—The symptoms observed during the history of this case point to the gastric mucous surfaces as the point of commencement of the disease. The progress of the inflammation from the stomach and duodenum, through the small intestines, to the colon, is well marked by the advance of the symptoms, the extension of the tenderness from the epigastrium and right hypochondrium to the abdomen generally, and ultimately the diarrhoea and bloody evacuations. We find, on examining the liver, that it is hypertrophied, and some parts of its tissue disorganised, breaking down on the least pressure. The left lobe was in a true state of softening, the result evidently of the extension of a chronic inflammatory action from the neighbouring mucous surfaces to the substance of the

liver itself. We have another point worthy of notice in this case—the change in the character of the bile. The secretions must inevitably be deranged when the organs furnishing them are themselves diseased; hence the viscosity and dark colour of the bile, with a probable alteration in its chemical as well as physical characters, the consequence of the pathologic state of the liver.

CASE 5.—Gastritis, succeeded by hepatitis.—Abscess of the liver.—Dropsy.
—Dyspeptic symptoms for two years.

In the month of August, 1834, I was requested to see Mr. R—, who had suffered from a train of what are called dyspeptic symptoms for two years. About that period prior to the present date he had been suddenly seized with acute pain, which he referred to the centre of the epigastrium; a sense of great uneasiness, nausea, and pain followed each meal, and his food was occasionally vomited. He was subjected to various plans of treatment for some time, but with little real benefit. At length a spontaneous discharge of blood took place from the anus, and the stomach was, in consequence, so much relieved that he ceased to regard it, although it was occasionally a source of great inconvenience to him. He has indulged to a great extent in dram-drinking, and has for years been subject to distressing palpitations.

Present state.—Constant pain referred by the patient to the epigastrium, which region is hard, full, and resisting, and exceedingly sensible to pressure. Peculiar sharpness of the pulse, which is easily compressed. Examination of the heart by auscultation detects merely a tumultuous and irregular beating, by which the two sounds of the heart are completely hidden. This irregularity is not accompanied by any “bruit de soufflet.” Soon after this report the patient became anasarcaous, and subsequently ascitic. On September 2d he was suddenly seized with difficulty of breathing, and expired.

Post-mortem examination, twenty-four hours after death.—*Thorax.*—Several pints of bloody serum were effused into each side of the chest. The bronchial mucous surfaces much injected. The pericardium every where intimately adherent to the heart, from which it was with difficulty partially separated. The muscular parietes of the ventricles of the heart thin and flabby, their substance filled with ecchymoses. The aorta, at its origin, was dilated into a sac, which would contain an orange. In several points the lining membrane was softened and ulcerated, and the two external coats dilated; so that a number of small aneurisms existed in the coats of the large one.

Stomach.—The whole internal surface of a deep-red colour, towards the pylorus approaching to blackness; the large veins running under the mucous coat were in a highly congested state. Near the pylorus the papillæ of the mucous membrane were enlarged to the size of pins' heads, and considerably elevated above

the surface. In places, chiefly near the pylorus, were disseminated patches of arborescence intensely red, and accumulations of red points in patches the size of a sixpence. The same appearances were observed, with some slight modifications, throughout the duodenum.

The liver was enlarged, but not to a great extent; its substance softened, with small collections of pus in different parts.

Remarks.—The history of this case clearly demonstrates the commencement of the diseases of the abdominal viscera in the stomach. We have here a person addicted to dram-drinking troubled with dyspeptic symptoms, which suddenly assume the appearance of gastritis; this relieved, in its more serious symptoms, by a sudden and spontaneous hemorrhage from the rectum, not dependent upon hemorrhoidal disease. The symptoms still, however, continue in a minor degree, which is evident from the painful digestion, with the epigastric pain and tenderness. The patient, after a time, becomes anasarcaous, ascitic, and dies from effusion into the chest. The post-mortem appearances confirm the symptoms observed during life; extensive inflammatory disease of the pyloric portion of the stomach, proceeding along the duodenum to the liver, where it terminates in suppuration, most probably from the propagation or extension of the inflammatory action from the mucous membrane of the duodenum to that lining the common and the hepatic ducts.

CASE 6.—Dyspeptic symptoms for four years.—Redness, with softening, of the mucous membrane of the stomach.—Abscess of the liver.¹

A patient, aged fifty years, had been subject for four years to a class of symptoms which appeared to originate in the stomach, and which had been produced by moral causes. During this period, the appetite had been variable—at times morbidly increased, at others wanting altogether; nausea and diarrhoea had occasionally been present, accompanied by wandering pains in the right side. Suddenly these symptoms had assumed a more acute type. Fever, with shivering, had set in; general yellowness of the skin; total loss of appetite; acute pains in the region of the stomach, but none in the region of the liver; pains in the left side, with slight oppression: to which were subsequently added sickness, with looseness of the bowels. At a period of his disease still more advanced, the jaundiced colour of the skin became deeper. He had intense headache; the respiration was accelerated, hurried, and irregular. On examining the region of the liver, a resistance was observed which extended from under the false ribs on the right side into the epigastric region. In this point, acute lancinating, or obtuse pains, variable in their intensity and duration, were complained of during the continuance of his disease. During the last three days of his

¹ Louis, Mémoires sur diverses Maladies. Abcès du Foie. Case iv. p. 386.

disease the tongue was in a natural state; previous to this it had been much loaded. He sunk, and died in a state of delirium on the 30th of October, fifteen days after the invasion of the acute symptoms.

Post-mortem examination, seventeen hours after death.—The stomach presented several pathologic changes worthy of remark. In its greater curvature the mucous membrane was covered with red points, and much softened. The pyloric portion was perfectly healthy; the intermediate space presented a gray colour, slightly injected. Disseminated over this part of its surface were numerous small ulcerations. The mucous membrane was here much thickened. The liver was in all parts considerably softened. Its interior, more particularly the substance of its obtuse border contained a number of small abscesses. The gall-bladder was small, contained a little mucous, and was obliterated at its neck; the cystic duct contained a small calculus, the mucous membrane and sub-mucous cellular tissue were thickened and slightly indurated.

Remarks.—In this case we have an example of abscess of the liver terminating a long series of dyspeptic symptoms, which are explained by the state in which the mucous membrane of the stomach is found after death. Louis details five cases of abscess of the liver, all of which commenced with a class of symptoms referable to the stomach and bowels, and four of these cases exhibited inflammatory conditions of the mucous membrane of these organs, when examined after death. In the fifth case, although no inflammatory condition of the mucous membrane of the stomach was present, it was much thickened. In the six cases related by Andral in the Clinique Médicale, all but the first were preceded by a class of symptoms dependent on a morbid state of the same parts. Some of the cases were preceded by derangements proper to the lower portion of the alimentary canal; others, again, and these by far the greater number, followed affections of the upper part, as the stomach and duodenum.

Of all the affections of the liver in which this organ presents any change in its structure, perhaps that lesion termed "cancer," whether in its hard or soft form, is most invariably preceded or accompanied by symptoms of a morbid condition of the mucous membrane of the stomach; and most commonly, in examinations after death, is the change found to exist simultaneously in both organs, as the researches of Cruveilhier, Bérard, and others, most certainly prove. "As well as the other diseases of the liver, already mentioned, cancer of this organ is most frequently accompanied during life by gastro-intestinal symptoms; and frequently, though not always, traces of inflammation are found in the digestive tube, and particularly in the stomach."¹

¹ Andral, Clinique Médicale, p. 967.

CASE 7.¹—Cancer of the liver.—Chronic inflammation of the stomach and duodenum.

A public writer, thirty-seven years of age, who had previously enjoyed a good state of health, after having been exposed to a current of cold air when in a state of perspiration, was suddenly seized with the symptoms of cholera morbus. These disappeared in a few days, but from this moment he felt a difficulty in digesting his food hitherto unknown to him; the presence of food excited in him a feeling of fulness and abdominal distension. He had also, at times, some looseness of the bowels. Three years passed on in this way; he then became jaundiced.

On being examined at this period a body was discovered in the right hypochondrium, with an uneven surface, which terminated in a thin edge a little above the umbilicus, and extended into the epigastrium a little beyond the xyphoid cartilage. The patient did not feel the presence of this tumour; he had never felt the least pain in it, neither did pressure produce any. For a long time back the patient had lost all appetite; when he took the least aliment, solid or fluid, into the stomach, he experienced a general indisposition, and at the same time a swelling at the epigastrium, but never any real pain. A great quantity of gas was voided by the mouth; he had scarcely vomited two or three times when his digestion began to be deranged. He complained of often feeling pulsations of the heart, preceded by rather an acute pain in the praecordial region. He also experienced from time to time very distressing headaches, disturbances of vision, formications in the hands and feet, and temporary contractions of the different muscles. For several months back the frequent diarrhoeas to which he had been subject were succeeded by obstinate constipation; the latter set in at about the time the jaundice appeared. The pulse was uniformly frequent, the palms of the hands burning hot, the skin always dry; and the patient complained of very troublesome itching.

No remark is made upon the plan of treatment adopted, further than the exhibition of some Vichy water. "This had no other effect than that of lighting up fever, and of exciting pains in the epigastrium which the patient had not previously felt." Shortly after this symptom of inflammation of the lung and pleura of the right side set in, of which the patient died.

Post-mortem examination.—The liver formed in the abdomen a large tumour. On cutting into its interior it was found to contain a number of whitish masses, hard and soft, reduced to a pap; several streaked with reddish lines, which left between them certain areolæ, varying in form and size; others had blood effused into the midst of them. There was bile in the gall-bladder.

The internal surface of the stomach presented, through its entire

¹ Andral, Clinique Médicale, "Maladies du Foie," Case 23.

extent, a slate colour, the seat of which was in the mucous membrane; this membrane was thickened, indurated, and uneven at its surface. The same colour was continued into the duodenum, the follicles of which were observed to be very much enlarged. Over the rest of the digestive tube nothing was observed but large oval patches, with black points towards the termination of the ileum, and a brown colour of the cæcum.

Remarks.—This case is instructive in many points. We observe, in the first place, the symptoms of acute inflammation of the stomach and bowels, after which the digestive functions remain permanently deranged. Three years after the commencement of these symptoms jaundice appears, and at the same time examination detects a tumour in the region of the liver. The derangement in the stomach is explained by the state of this organ, as observed after death. We then find a chronic state of inflammation, into which the acute disease at first noticed had passed, and in which it remained. The results of what little treatment was adopted are worthy of remark. The exhibition of the Vichy water, which is highly charged with carbonic acid, had no other effect than that of lighting up fever and producing pain in the stomach. There can be no question but that the disease observed in the liver after death in this case was produced by the gastro-intestinal irritation, under the influence of which the hepatic disease was called into existence. In remarking upon the frequent coincidence of cancerous diseases in the stomach and liver, Cruveilhier supposes that the disease may be communicated to the stomach, when first developed in the liver, through the medium of the veins of the portal system. I have before shown that, in this manner, disease is frequently propagated from the stomach to the liver.

The symptoms observed in the digestive functions, which precede the development of what are termed cancerous diseases, are variable. Sometimes the symptoms of mere inflammatory indigestion are alone present; such as distension and pain after food, acid eructations, and occasional vomiting. Again, they are preceded by long-continued diarrhoea, showing an habitual state of irritation of the intestinal mucous surfaces. The inflammatory symptoms observed in the mucous membrane of the stomach may succeed to an injury of this organ, from the irritation of which disease of the liver may be produced: of this mode of its origin Andral reports an example. In a fourth form, hematemesis may be the first form of stomach derangement observed.

Hydatids, acéphalocysts, or serous cysts, are frequently developed in the liver, and constitute not the least frequent of its pathologic states. These cysts may be formed under the influence of gastro-intestinal irritation, or the latter affection may succeed to them, and thus become the proximate cause of death. In no organ are these so frequent as in the liver, and this is owing, says Cruveilhier, to the peculiar functions of the liver, viz., that it is the centre towards which is determined, and through which passes, all

the venous blood of the abdomen. To morbid states of this blood, produced from aliment imperfectly elaborated, or molecules mixed with it, but not assimilable to the structure of organs, this pathologist attributes the origin of hydatids of the liver; hence a morbid state of the digestive mucous surfaces is very likely to give rise to the formation of blood possessing properties to which Cruveilhier attributes the origin of hydatids of the liver.

VI.—On the Influence of morbid states of the Stomach upon the formation of biliary Calculi.

It is hardly possible that a secreting organ like the liver, the source of a product so necessary to the completion of the digestive process, can be altered in any way without the bile which it secretes becoming altered in its condition also. Again, we can hardly say that the liver is perfectly healthy in any state where the digestive mucous surfaces exhibit marked signs of disease. In these circumstances we find the liver either harder or softer than natural, or the seat of an unusual quantity of blood, thence called sanguineous congestion of the liver. I believe that no case of inflammation or vascular irritation of the mucous membrane of the stomach can occur without one of these states of disease in the liver. This being established, we naturally look to the state of the secretions produced under this condition of the secreting organ; and in this enquiry we shall find that facts fully carry out the opinions we had formed on these points. In most persons dying from gastric diseases, or from other diseases in which there is a serious complication of morbid conditions of the stomach, we find the contents of the gall-bladder altered in their character, and very commonly the lining membrane of this organ itself inflamed, softened, or otherwise diseased. In these states the contents of the gall-bladder are generally of extreme viscosity; the bile is black, resinous, adhesive, much thicker than in its natural state, and of a deep-black colour. I have noticed this condition of the bile in almost every instance I have examined after death from gastro-hepatic disease. Similar facts have been noticed by Portal¹ and others.

CASE I.—A young lady had been subject for some time to acute pains in the bowels and stomach, which had terminated in hiccup and obstinate vomiting. The patient died in a state of extreme emaciation. On examination after death the liver was found larger than natural, adherent to the diaphragm, and presented some livid spots. The gall-bladder contained bile as black as pitch. The intestines were inflamed, the cœcum approaching to a state of gangrene.²

If we enquire, for a moment, into the nature of the symptoms

¹ Maladies du Foie, art. xiii., "De l'état du Foie dans quelques personnes qui ont éprouvé des Dyspepsies, &c."

² Lieutaud, Historia Anatomico-Medica, lib. i., Obs. 441.

which precede the formation of biliary calculi, we shall find them, in most instances, limited to those which indicate a disordered or diseased condition of the stomach—which characterise either vascular or nervous irritation of that organ. I possess notes of cases of death produced by biliary calculi obstructing the cystic and common ducts, which have been preceded by symptoms of inflammatory indigestion for twenty or thirty years. Sometimes the symptoms of disease observed in the stomach are purely of the inflammatory kind ; in others they are marked by attacks of acute pain, recurring at longer or shorter intervals : but in all the cases I have had opportunities of examining after death, more or less disease of the inflammatory kind has been observed in the stomach, as well as the consequences of inflammation in the liver. Bonet¹ contends for the gastric origin of biliary calculi, which he conceives to arise from irritation originally seated in the stomach, thence propagated to the liver, which, causing alterations in the nature of its secretions, terminates in the formation of gall-stones. The same view is sustained by Jolly,² who attributes their origin to alterations of the secretions of the liver, determined by the inflammatory state of the secreting organ.

CASE 2.—The first case of this character which I shall notice is that of a lady, aged forty, who had suffered severely from the symptoms of indigestion of the inflammatory kind for twelve months previous to my attendance upon her. These symptoms had consisted in violent pain succeeding a meal, in nausea, fulness, and vomiting. Sometimes the pain came on immediately after taking food, at other times it did not supervene for an hour : when the pain came on it produced sickness and vomiting, and the food taken was rejected. The epigastrium was tender and painful, the tongue coated and dry, and the bowels confined ; occasionally a dark offensive evacuation was discharged. These symptoms had continued for a year, with little variation. They were materially relieved by leeches, and blisters applied over the region of the stomach, with warm aloetic aperients combined with morphia. From a continuance of this plan for a few weeks the patient became convalescent ; she no longer complained of her stomach, the food was taken with an appetite, and digested without pain or other inconvenience. Suddenly she was seized with acute pain on the right side, which was followed by the discharge, per anum, of a number of calculous concretions possessing all the characters of gall-stones.

CASE 3.—A lady, aged fifty-three, had been subject to impaired digestion of the inflammatory kind for twenty-five years. For seven months previous to my attendance upon her she had daily vomited her food, and the discharges from the stomach were occasionally mixed with blood.—She had a jaundiced state of skin,

¹ Op. cit., p. 169.

² Dict. de Méd. et de Chirurg. Pratique, tome iv., p. 376.

and the stools were of a chalky whiteness, whilst general pain and tenderness existed over the whole of the upper portion of the abdomen. The symptoms assumed an acute form, and she sunk from what appeared to be violent inflammation of the mucous membrane of the stomach. On examining the body, thirty-six hours after death, the stomach was found to be one mass of deep florid redness, its lining membrane covered with bloody mucus. The liver was harder, and much larger than in the natural state. The gall-bladder amalgamated with its tissues ; its mucous membrane inflamed and softened ; the bile as thick and dark-coloured as pitch. It contained two gall-stones, and a third was found in its duct.

CASE 4—A gentleman, aged fifty-seven, began to suffer from severe inflammatory indigestion at the age of twenty. Sometimes this patient was troubled with pain after food ; at other times he had attacks of vomiting. During the latter years of his disease, the skin sometimes presented a jaundiced appearance, and the stools were perfectly white. He was at times suddenly seized with acute pain in the right hypochondriac region, with jaundice and vomiting ; during these attacks the tongue generally assumed an aphthous condition. These attacks had supervened at intervals during the last two years of his life only ; they were, in several instances, removed, but from one of more severe character than usual the patient sunk. He had never, after these attacks, been known to pass gall-stones, or other concretions, per anum. On examining the body, twenty-four hours after death, the mucous membrane of the stomach was found thickened and inflamed to a great extent, its sub-mucous veins were turgid and full, vivid patches of redness, approaching a dark colour in places, were disseminated over the surface of the stomach ; these were more numerous towards the pyloric portion. The liver was hard, hypertrophied to some extent, and united, by strong adhesions, to the diaphragm. The mucous membrane of the gall-bladder highly inflamed ; the bile of a dark pitchy appearance. It contained masses of soft concretions, resembling clay, easily broken up between the fingers. The cystic and common ducts were largely distended with the same matter, by which they were completely obliterated.

CASE 5—A divine, between forty and fifty years of age, had for some months experienced weight and uneasiness on the right side, accompanied by vomiting, which came on generally about four hours after a meal ; with these symptoms were present others connected with a disordered condition of his digestive powers. After the exhibition of some pills composed of aloes, ammoniacum, and the sulphate of potass, the patient became suddenly much worse ; incessant vomiting set in, the pulse, previously unsteady, became more so : and in this state he sunk. On examination of the body after death the liver was found greatly hypertrophied, and full of steatomatous tumours ; the gall-bladder contained a black bile and

some calculi. The internal surface of the stomach was covered with dark-coloured patches ; in the vicinity of the pylorus its coats were so much thickened that the stomach, in this part, would not admit of its customary dilatation.¹

An illustrious princess, spoken of by Morgagni, had suffered from a continual pain in the stomach and bowels ; a diarrhoea suddenly came on, from which she died. On opening the body the stomach was found to be in a gangrenous state ; the gall-bladder contained a calculus as large as a small pear.²

CASE 6.—A person, aged sixty, was seized with diarrhoea and vomiting, the former of which was succeeded by obstinate constipation. The vomiting continued, in spite of all that was done to relieve it, and the patient died with all the symptoms of acute inflammation of the stomach and bowels. On examination of the body after death the stomach and intestines were found to be violently inflamed, the gall-bladder scirrhouous, and a large biliary concretion completely obliterated the passage through the jejunum. The cellular tissue between the liver and gall-bladder was the seat of a chronic suppuration.³

CASE 7.—A patient, aged sixty-three, had suffered for some time from symptoms connected with a morbid state of the digestive powers, which had commenced with bilious vomiting and diarrhoea three months before. Appetite was nearly gone, and the little food which was taken occasioned in the epigastric region a sense of weight and heat, which lasted for several hours. A blister applied over the epigastrium was of some use in assisting digestion ; leeches had been applied without any advantage. He had jaundice ; the stools were of an ash-gray colour ; he emaciated rapidly. One morning he felt a tearing pain in the right side, which was followed by acute and general pain all over the abdomen. He died with these symptoms of peritoneal inflammation in the course of the night. On examining the body after death, the gall-bladder, very much reduced in size, was found ruptured near its fundus ; its coats were remarkable for their extreme friability. The cystic and common ducts were nearly obliterated by the thickening of their parietes. The hepatic duct was very much dilated, and filled with biliary concretions. The mucous membrane of the stomach was of a slate colour, and very much thickened, as were also its subjacent cellular and muscular tunics.⁴

OBSERVATIONS ON THE PRECEDING CASES.

Broussais attributes the formation of biliary concretions to an inflammatory condition of the liver and gall-bladder. We shall find, by reference to the preceding cases, that a diseased condition

¹ Morgagni, *De Sedibus, &c.*, Epist xxx., No. 14.

² Op. cit., lib. 3, Epist. xxxv., Art. 18.

³ Annales de la Médecine Physiologique, Août, 1827.

⁴ Andral, *Clinique Médicale*, by Spillan, Case 31, p. 984.

of the mucous membrane of the latter organ is the most uniform organic change coinciding with the presence of concretions in its interior. If we enquire carefully into the symptoms which precede the formation of biliary concretions, or the existence of hepatic irritation, we shall find them commencing with gastric affections, evidenced by various symptoms connected with, and dependent upon, inflammatory irritation of the mucous membrane of the stomach ; and it is to the propagation of disease, by contiguity of tissue, from the mucous membrane of the stomach to that of the duodenum, and thence, through the common duct, to the cystic and hepatic, that may be attributed many of the diseases of the excretory passages of the bile. We see, in all the preceding cases, symptoms of gastric irritation preceding the formation of gall-stones for a longer or shorter period. In the first case marked symptoms of an inflammatory condition of the stomach had preceded the discharge of gall-stones per anum for twelve months. In the second and third cases this state of the stomach had been present for many years ; in the second case the patient had suffered from stomach derangement for twenty-five years. The subject of the third case commenced suffering at twenty ; he died at the age of fifty-seven, and had been seeking relief from his disease during the whole of that time. For the last three or four years a week did not pass without my seeing this patient, and I most minutely questioned him on the whole history of his disease. In all the other cases we find symptoms of a diseased condition of the lining membrane of the stomach to have been first in existence. Loss of appetite, pain, weight, and heat after food, vomiting, and epigastric tenderness, were more or less present in each case ; and though the patients sunk from the secondary disease—that of the gall-bladder and its appendages—we find extensive organic mischief, in every single instance, in the stomach and first passages. Not only do we notice the symptoms of stomach derangement during life, but lesions in the suffering organ after death, by which the symptoms observed during life are explained. The diseases of the stomach which precede these formations are of the inflammatory kind, most probably commencing in mere hyperemia of the stomach, the result of over-stimulation, from moral or other causes, and thence progressing into confirmed chronic gastritis, terminating, as in the fourth and sixth cases, in organic change. In the third case the patient died from the stomach disease alone, by the passage of the inflammation from the chronic to the acute state. The existence of any biliary concretions was not suspected during life, yet after death we find alterations in the character of the bile, and several large concretions in the gall-bladder. In other instances the terminations of gastric diseases are not in the organs which produced them, as in some examples in the preceding cases. Thus, in one instance we see the patient sinking from obstructions of the gall-ducks ; in a second from a biliary concretion obstructing the jejunum. These concretions were produced under derange-

ments of the liver and its secretions which evidently originated in the stomach, this organ furnishing symptoms of derangement for years before any affection of the liver or its appendages was suspected. It is this termination of inflammatory irritations of the stomach in diseases of other organs which should render us so watchful of their progress.

It is not the affection of the stomach in itself which ought to demand our watchfulness, so much as the influence the latter exercises over the origin, progress, and termination of diseases in other organs. On the other hand, a knowledge of the nature and treatment of the morbid conditions of the stomach is essentially necessary towards the successful management of a vast number of diseases, which, although of a more prominent character than mere gastric irritations, are nevertheless produced by, and strictly dependent upon, them.

CHAPTER IX.

ON THE INFLUENCE OF MORBID CONDITIONS OF THE STOMACH UPON CERTAIN FORMS OF DROPSY.

Into the nature of dropsy it is not necessary for me, in this enquiry, to enter. I merely wish, in this place, to notice the influence which inflamed conditions of the stomach exercise upon accumulations of serum in the peritoneum and other parts, through the medium of the organs upon which dropsy more immediately, in these instances, depends.

Ascites may depend upon a change in the anatomical structure of many organs, and commonly is owing to a mechanical obstacle preventing the free return of venous blood through the abdomen, which may exist in the liver, the heart, or other organs. We may consider the influence of the stomach upon ascites in two ways: 1st. In reference to the conditions of those organs upon which the ascites depends; and 2nd. As it regards the exhibition of diuretic remedies. We have seen, from the facts brought forward in this work, that an inflamed condition of the lining membrane of the stomach commonly precedes disease in the liver and heart, and in a great majority of instances accompanies both, either in a primary or secondary form. In one form we observe hepatic disease, consisting, perhaps, in hypertrophy, with induration of the liver, developed under a gastric inflammation which has existed for years. Consequent upon the disease of the liver ascites comes on; the disease in the liver, of whatever character it may be, when once formed, re-acts upon the stomach; and hence we so often observe, during the progress of hepatic diseases, periodical attacks of acute

or sub-acute gastritis occurring. During the continuance of the inflammation in the stomach, the hepatic parenchyma, already diseased, of increased density, and already offering a mechanical obstacle to the return of blood, becomes still more congested, and is thrown into a state of active hyperemia; and, in this condition, the mechanical obstacles become greater, and the accumulation in the peritoneum is increased. As the symptoms of gastritis disappear or are subdued, the ascites is reduced to the state in which it existed prior to their occurrence.

I have, for the two last years, had a gentleman under my care who has a large, hard, hepatic tumour, with an uneven surface, occupying the epigastric and hypochondriac regions, and extending nearly to the umbilicus. He is ascitic to some extent; the lower limbs are also anasarcaous. When he first applied to me he had confirmed chronic gastritis; the tongue was intensely red, the epigastrium tender; he had acid eructations, abdominal distension after food, and almost daily vomiting. Sometimes these symptoms put on the acute form; and at these times the dropsical symptoms were always increased. The action of remedies in this state is also worthy of notice. Some infusion of broom was exhibited in the interval of the acute attacks of gastritis, but before all the symptoms of gastric inflammation had disappeared. This produced vomiting, increased the symptoms of disease in the stomach, and instead of increasing the secretion of urine, this diminished under its use, from the feverish state of the economy induced by the inflammatory action in the stomach. Six or eight leeches were now applied every other day over the epigastric region, and small doses of the blue pill with opium were administered; the patient was confined also to a strict milk and farinaceous diet. By these means the stomach disease was entirely subdued, though a great disposition to its return always exists with such complications. What produced vomiting when the stomach was inflamed, and under whose use the urinary secretion diminished, now increases its flow to the amount of sometimes two quarts in the course of a single night. Since the gastritis has been cured the liver is softer, the ascites less, and diuretic medicines are well borne, and answer the purposes for which they were prescribed. In ascites, dependent upon hepatic disease, the state of the stomach should always be carefully examined before the plan of treatment is decided upon. The complication of sub-acute gastritis, duodenitis, or enteritis, with the affection of the liver, ought to modify most materially our treatment in such cases; the gastritis, in whatever form it may appear, should be cured before stimulating diuretics are employed.¹ If diuretic remedies be administered with the

¹ Sometimes we see diuretic remedies administered in ascites produce vomiting. That these should be successful it is necessary that the abdomen should not be painful, and that its contained viscera should be healthy.—Landré Beauvais, Dict. de Médecine, 1st. edit., art. Ascites.

mucous membrane of these organs in an inflamed condition, the accumulations of serum will be invariably augmented from an increased congestion of the liver, produced by the irritation which these remedies cause in the digestive mucous surfaces.

Where the mucous membrane of the stomach evinces signs of disease, in complication with hepatic diseases associated with dropsy, its susceptibility to impression is in many cases much changed. Sometimes a mild aperient will, in these cases, produce a diarrhoea which we find some difficulty in arresting; or, again, the administration of a diaphoretic or diuretic remedy may produce severe vomiting. In these states, also, a single dose of mercury will occasion profuse salivation. I have seen this the case in three instances. Where the liver is extensively diseased, the pathologic change accompanying it in the stomach may be not merely an inflammatory condition, but one of malignant disease, or of ulceration, which would require the utmost caution in the use of remedies.

"A government officer, aged 58, addicted to the free use of wine, who had some time previously received in battle a blow over the stomach and liver, entered the Hospital Beaujon, in August, 1832. He had then general anasarca, ascites, and hydro-thorax, with symptoms of enlargement of the heart. The region of the liver and that of the stomach were painful and tender. He was bled generally and locally, with relief, for the pains in the stomach, &c. The use of digitalis was now commenced, to the extent of two grains a day; soon afterwards a relaxed state of bowel came on, which rapidly increased till he had passed daily, by stool, five or six pints of limpid serum. The dropsy disappeared; but in spite of all remedies the purging continued, and the patient died in a state of extreme wasting. On examination after death, the liver was found atrophied and hardened. A cancerous tumour existed in the smaller curvature of the stomach."¹ In remarking upon the use of hydragogue remedies in cases of various forms of dropsy, Martin-Solon very properly observes that we ought not to prescribe them where the gastro-intestinal mucous membrane presents the symptoms of inflammation. In such states we are more likely to produce disease in it than to cure the primitive affection.

In other kinds of dropsy, which depend upon disease of the heart, an inflamed condition of the mucous membrane of the stomach is not the least frequent of its complications. I have mentioned, in another part of this work,² the case of a lady who was anasarca, and who had valvular disease of the heart and an inflamed condition of the mucous membrane of the stomach. After leeching the epigastrium, in her case, elaterium was well borne and afforded great relief to the dropsical symptoms. If exhibited without first unloading the vessels of the stomach, distressing vomiting was always produced, and the anasarca was not at all relieved.

¹ Martin-Solon, Dict. de Méd. et de Chir. Prat., art Hydragogues.

² See the chapter on Diseases of the Heart.

"Different diseases which manifest themselves during the progress of an affection of the heart, sometimes exercise a remarkable influence on the production of dropsy. In many instances, it is during a gastro-intestinal inflammation that the dropsy becomes manifest."¹

A lady, who had for five years been subject to periodical vomiting, accompanied by the symptoms of valvular disease of the heart, the chief physical symptom of which was an unusually loud "bruit de soufflet," became suddenly anasarca, under an aggravated attack of the stomach affection. The fever which accompanied the onset of these acute symptoms assumed a distinct intermittent quotidian form. Quinine was administered for the relief of the latter affection, without reference to the pathologic state of the stomach or to the complications of the disease. The patient died suddenly the third day of the treatment, of effusion into the chest. I am convinced that, in this case, the occurrence of the acute disease in the stomach produced the anasarca, by still more embarrassing the heart's action, and I am also strongly impressed by the conviction that had free local depletion been made from the region of the epigastrium, this patient's life might have been prolonged to an indefinite period.

In the complications of ascites and anasarca with diseases of the heart, we commonly observe the ill effects following the administration of digitalis; whilst, in other instances, the exhibition of the remedy is attended with the happiest consequences. This arises, not from the varying effects of digitalis as a therapeutic agent, but from the state in which the mucous membrane of the stomach is found at the time of its exhibition.

A man, sixty years of age, entered the Hospital of La Charité with the symptoms of an affection of the heart, to which had succeeded a dropsical state of the legs, and, subsequently, of the belly. The tincture of digitalis was administered to the extent of thirty drops for a dose. *It occasioned vomiting, which ceased spontaneously when its use was given up.* This patient ultimately died of disease of the heart. On examining the body after death, the digestive tube was found generally injected.

In remarking upon digitalis, as used for the purpose of relieving dropsical effusions in affections of the heart, both Broussais² and Andral³ insist on the most careful attention being paid to the condition of the gastric mucous surfaces. Before administering this remedy, says the first of these authors, we must be assured that there is no gastritis to interfere with its operation. When this organ is prepared, by the removal of inflammation, for its administration, we may have recourse to it with great hopes of success.

¹ Andral Clinique Médicale, p. 271.

² Cours de Pathologie, et Thérapeutique Générales, t. iii. p. 144.

³ Clinique Médicale.

CHAPTER X.

ON THE INFLUENCE OF MORBID STATES OF THE STOMACH UPON
THE ORIGIN, PROGRESS, AND TERMINATION OF DISEASES OF
THE HEART.

The stomach is an organ which, from its intimate connection with the other parts of the economy, cannot be long or seriously disturbed in its functions, or thrown into states of disease, without in some measure, affecting other organs, with which it is so closely connected. The reverse of this proposition is also true, that as the stomach affects the integrity of other organs in states of disorder or disease, so do they react upon and disturb it when they are thrown into morbid conditions. These remarks apply more particularly to the connection of the heart with the stomach, than, perhaps, to those of any other organ, for we find the mutual reaction of these two upon each other, in states of disease, to constitute a circle of morbid phenomena, which are not merely confined to the organs in question, but become the exciting causes of other diseases in remote parts, the starting point of which we shall trace, in most instances, to its commencement in the stomach alone.

In the first series of observations I shall trace the effect of the stomach upon the heart. All inflammatory irritations of the stomach do not influence the heart's action ; they generally affect this organ more as they are more intense, as they occur in patients of greater susceptibility, or as they occupy more immediately the cardiac portion of the stomach.

CASE 1.—Palpitations after meals for some months; the meals also succeeded by flatulence and nausea—Subsequently acute gastritis, with inordinate action of the heart.

A gentleman, aged forty-five, had suffered, for three or four months, from palpitations, which came on after eating. Accompanying these palpitations he had flatulence, fulness and weight in the epigastrium, with occasional nausea. To these succeeded throbings in the neck, a degree of stupor, and total inability to exercise any intellectual faculty as long as the period of digestion continued. After the continuance of these symptoms, in the manner I have related, for about four months, they assumed an acute type ; vomiting, pain, and excessive tenderness of the epigastrium set in, with thirst, a loaded tongue, vividly red at the point and edges, and inordinate action of the heart. The pulsations of this organ were unusually strong and frequent ; the pulse rose to one hundred and twenty after taking even the smallest quantity of nutriment ; the eyes were suffused, and the face slightly swollen. Examined by auscultation the heart appeared to possess an unusual degree of force in its action, but did not afford any evidence of hypertrophy nor

of valvular disease. Two relays of leeches were applied over the epigastrium, by which all the symptoms were so far mitigated as to render the patient nearly convalescent. Still there continued a great disposition to excitement about the heart, which even small quantities of farinaceous food brought on; at the same time the gastric symptoms were also aggravated. The prussic acid was now given freely with great benefit, allaying the irritability of the stomach, and at the same time quieting the heart's action.

Remarks.—This case may be taken as the type of a class in which symptoms of great irritability exist naturally, both in the stomach and in the heart—one keeping up the state of excitement in the other. The previous history of the case shows that this irritability of both organs was constitutional; for if, after exertion which had accelerated the heart's action, this patient had at any time taken a hearty meal of solid food, symptoms of gastritis immediately set in. The violent action of the heart preventing the free return of blood from the vena-cava in such cases, this fluid is retained in the portal system, and the mucous surfaces of the duodenum and stomach become mechanically congested with more blood than is necessary to the fulfilment of their functions. The impression of stimulating food upon a membrane in this state only increases the mischief by determining into it a still greater quantity of blood, and hence true gastritis is easily brought on. Where the heart's action is habitually energetic, the mucous membrane of the stomach is constantly thrown into this state, and digestion, in consequence, rendered laborious. "Those persons in whom the action of the heart is habitually energetic have generally the tongue red and pointed, the sensibility of the epigastrium exalted, and the region of the liver and duodenum full and more or less painful. This results from the sympathies which connect the heart and the stomach; but in many cases it appears that the gastro-duodenal irritation is kept up by congestion of blood in the liver, caused by the difficulty experienced by the vena cava in discharging its blood into the heart, in consequence of its hurried action. Treatment confirms this view, since we find leeches applied over the right hypochondrium and the hepatic and duodenal regions relieve the symptoms more than general bleeding or leeches applied over the heart."¹ With regard to the case in question, we observe the exemplification of the truth of these remarks. Naturally energetic action of the heart, with constant symptoms of irritability of the stomach, terminating in acute gastritis; accompanying this we have an unusual disturbance of the heart's action, consequent upon its constitutional excitability. The results of treatment, too, correspond with the remarks of Broussais: the leeches to the epigastrium mitigate to convalescence all the symptoms. Attendant upon the vascular irritation, which forms the chief features of this case, we find a great degree of nervous irritability, evidenced in the unusually

¹ Broussais, *Commentaires dès Propositions de Pathologie*, t. ii. p. 606.

irritable state of the heart. In such a state, after bleeding, the hydrocyanic acid is a most invaluable remedy; and, in fact, I know of no other article in the *materia medica* which could be employed in such a state, as its substitute. We have another class of morbid phenomena in this case, which are referable to the head—the loss of memory and thought after meals; these are, doubtless, owing to a temporary cerebral congestion; we observe them disappear as the process of digestion is completed. Apoplexy is common in such states. We shall allude to this more particularly in speaking of the influence of the stomach upon the brain.

The heart is not only influenced in the force and frequency of its pulsations by inflammatory irritation of the stomach, but the regularity or rhythm of its action is interrupted; its beats become irregular, tumultuous, and intermittent, and put on all the characters of organic disease; the breathing is hurried, and occasionally the lower limbs become œdematosus, from interruption to the free return of blood through the heart. I have met with one very remarkable case of this kind, and a second is recorded by Cruveilhier, in which even the physical as well as rational signs of diseased heart were present; yet on examination after death no disease of the heart is apparent, all the pathological changes being found in the stomach alone.

CASE 2.—Irregular action of the heart—Intermittent pulse—Œdema of the legs—Gastritis—No disease of the heart to account for its irregular action.

A middle-aged female, addicted for some time to the free use of spirituous liquors, came under my care for what was supposed to be an organic affection of the heart. The pulse at the wrist was a mere unsteady trembling of the artery, in which nothing like distinct pulsation could be discovered. On examination of the heart itself a similar state of things was observed. Auscultation indicated little: There was merely a tumultuous undulating motion of the heart; no distinct action could be made out. Accompanying this state she had much flatulence, distension after food, nausea, and vomiting, with considerable pain and weight in the epigastrium, much increased by pressure. The weak and emaciated state of this patient precluded the use of active remedies of all kinds. After the continuance of this state for some weeks, she gradually sank and died.

On examination after death the heart was found perfectly healthy; it presented no evidence of disease, either in its muscular structure, in the valves, or in its investing or lining membranes. The stomach presented, in its cardiac portion, one universal mass of deep pink injection. The liver was hypertrophied, its substance considerably more dense and pale than in the healthy state.

Remarks.—We have here an example of gastritis exerting a most marked influence over the action of the heart, in fact, pro-

ducing symptoms of disease in this organ, which appear of so unequivocal a character that we are led to regard the affection of the heart as the leading feature in the disease. If we dwell upon the symptoms furnished by the heart—the intermittent pulse, the tumultuous motion of the heart when examined by auscultation, in which nothing distinct in the action of the ventricles could be discovered, there seems no reason to doubt but that the patient was labouring under an organic disease of this viscus, and that the stomach disease was dependent upon it. The post-mortem examination, however, shows the reverse to be the fact. We find after death a diseased stomach, and a healthy heart, at least as far as our senses are capable of appreciating a normal state of organisation. Cruveilhier records a similar case, in which both the physical and rational signs of disease in the heart were present. After death, however, the heart was found perfectly healthy; cancerous disease of the stomach, with a similar morbid condition of the liver, were the only organic changes met with.

I record the leading features of the case recorded by Cruveilhier. "The patient was thirty-eight years of age, and had been indisposed for five weeks. He at first complained of loss of appetite, slight uneasiness after food, with distressing flatulence, relaxed bowels, dry cough, palpitations, felt principally in the epigastrium, coming on from the least exertion, and ceasing after a few minutes' repose. No tenderness in the epigastrium on strong pressure. These symptoms were noted on the 15th of October; on the 1st of December there was no amendment: the patient then complained of weight at the stomach, nausea, eructations, and acidity, with some fever.

"April 10th.—The symptoms, at this date, remained much the same; there was no sensibility in the regions of the stomach or liver. Distressing palpitations in the epigastrium, as well as in the region of the heart, so strong as to be felt all over the head. Food sits heavy upon the stomach for eight or ten hours after eating; warm drinks occasion distress, cold ones were agreeable and refreshing. The stethoscope, applied over the heart, discovered a strong and extended pulsation diffused over the whole of the left side of the thorax; accompanying it was a whistling sound (*bruit de sifflement*), synchronous with the pulsations of the heart and the pulse. It was concluded, from this examination, that the patient was affected with hypertrophy of the heart and disease of its valves; and a treatment calculated to retard the progress of such a disease was consequently adopted. In May constant vomiting set in, but the state of the epigastric region remained the same; there was no tenderness, fulness, or tumefaction.

"In August physical signs of disease of the liver were added to the symptoms previously existing. Milk and fruits were the only aliment his stomach could then retain.

"On examination after death the liver was found filled with deposits of encephaloid matter; the stomach near the pylorus, pre-

sented an indurated mass with considerable thickening, hollowed in the centre by a deep circular ulcer. The heart, the lungs, and the remaining organs were perfectly healthy."¹

Andral and Broussais both attribute the occurrence of irregular and increased action of the heart, consequent upon gastric disturbance to predisposition to disease on the part of the heart, characterised by a preternatural thickness in its walls, or an over-excitable state of the nerves distributed to it. Thus the gastric irritation becomes the occasional cause of the more rapid development of disease of the heart, the rudiments of which these persons carry about them. I am often consulted by patients who complain loudly of stomach derangement and the palpitations which accompany it, which only come on after meals, to which they have been subject for years. Although the stomach is the organ principally attracting attention, yet when we come to examine minutely into the state of the heart, we find in it the physical signs of disease. I have two gentlemen now under my care in this state. It is impossible to say, in such cases, whether the stomach may not have been the primary seat of disease; but it is certain that the removal or mitigation of the symptoms indicating an inflamed state of the mucous membrane of the stomach renders stationary the evils which exist in the heart.² How common is it to see persons, who carry about them all the signs of diseased heart, tormented with periodical attacks of gastritis, which are termed bilious seizures, during the continuance of which the affection of the heart becomes more urgent and alarming. To this point we shall return, however, on examining the influence of the heart upon the stomach. The two cases I have mentioned are examples of the most acute and marked forms, under which sympathetic affections of the heart are manifested, consequent upon disease in the stomach; these sympathies may, however, assume much milder forms, from the mere increase in the force and frequency of the heart's action to irregularities of various kinds, with an intermittent pulse. These derangements taking place only during the continuance of disease in the stomach, they cease with it, and reappear when these morbid states again set in.

I have now to record several examples of peculiar states of the pulse dependent upon gastritis or gastric hyperemia.³

CASE 3.—A young lady, aged eight, after the disappearance of the eruption of scarlatina, was seized with sickness and constant vomiting of food, with pain and tenderness in the epigastrium: the bowels were constipated, the papillæ of the tongue enlarged and intensely red. The pulse was frequent, and had a double beat to

¹ Anatomie Pathologique, &c. 12me. livraison.

² "Cure the gastritis and you will often see the affection of the heart become stationary."—Andral.

³ These forms of irritation in the stomach are evidently combined with some peculiar conditions of the nervous system; the stupor in some cases, and the convulsions in others, are evidences of this. Those cases also illustrate some of the sympathies existing between the stomach and the brain.

each systole of the heart, two pulsations of the artery at the wrist to each single contraction of the left ventricle of the heart.

CASE 4.—A boy, aged ten, was seized, after the disappearance of the eruption of scarlatina, with constant sickness, vomiting, and pain and tenderness in the epigastrium. The bowels were obstinately constipated, and the stomach would not retain either food or medicine. The pupils were dilated to the utmost extent. After the continuance of this state for two days violent convulsions came on, which recurred after bleeding from the arm, but did not again come on after the application of leeches to the head and stomach at the same time. The double pulsation at the wrist continued during the whole of the period that the symptoms of gastric irritation lasted: they disappeared with the sickness. I could, in this case, predict the effect which would follow the administration of food or medicine; they invariably produced sickness as long as the double pulsation continued.

CASE 5.—A young gentleman aged ten, after scarlatina had constant sickness, pain, sometimes of a violent character, with tenderness in the epigastrium, and confined bowels. The stomach was so irritable that it would retain nothing in the shape of medicine, excepting a pill of calomel and opium. The pupils were largely dilated, and he had occasional fits of stupor. The symptoms continued many days; but the patient ultimately recovered from the application of leeches to the epigastrium and the occasional use of injections. This patient had a double pulsation at the wrist during the whole continuance of the gastric symptoms. I noticed it some hours before the vomiting commenced, and predicted the occurrence of the sickness from the state of the pulse.

CASE 6.—A middle-aged man had diarrhoea, with occasional sickness, and vomiting, distension, flatulence, and uneasiness after taking food. With these symptoms of gastro-enteric irritation, he had a double pulsation of the radial artery.

CASE 7.—An athletic man, after hard labour in the heat of the sun for many hours, was seized with the symptoms of acute gastric irritation; great heat of skin, constant vomiting, pain and tenderness in the epigastrium, thirst, dry red tongue, and tendency to delirium, with a tremulous double pulsation of the artery at the wrist. All the symptoms yielded at once to the application of twenty leeches over the epigastrium. The pulse then resumed its customary single beat.

Remarks.—These cases I have selected from many others to illustrate the influence of the stomach upon the arterial system. These peculiar states of pulse—sometimes a distinct double pulsation, at others a mere tremulous motion of the artery—seem altogether independent of any action of the heart itself. I have frequently had my ear upon the stethoscope, placed over the heart, and my finger upon the pulse at the same moment, but in the cases which I have detailed, the action of the heart has invariably been steady, whilst the pulse presented a mere tremulous motion or a

distinct double, or even triple, pulsation to each contraction of the ventricle. When these states of pulse coincided with the symptoms of gastric hyperemia, the head always appeared to be more or less affected: in some cases, certainly, there were no symptoms indicating any affection of the brain; but in others these symptoms were very marked. The convulsions in the third case, and the extremely dilated state of the pupil in the third and fourth cases, are examples of these secondary states of disease in the head subsequently to gastritis, accompanied by this peculiar condition of the pulse. Most of the examples which I have collected of these forms of disease have been after the disappearance of the eruption in scarlatina; but it will be observed that, in the fifth case, no feverish affection had previously been in existence; and, in the sixth case, the peculiarity of pulse coincided with symptoms of acute gastritis, and disappeared with the disease, which was treated with active local depletion. In this case we observe the pulse to resume its single pulsations as the blood flows from the region of the stomach. The nature of the symptoms on the part of the stomach, and the effect of local depletion from the epigastrium, leave us no room to doubt of the nature of the stomach affection; they also convince us that the state of the pulse was entirely dependent upon it, since we see the action of the artery become natural as the symptoms of inflammatory irritation are removed.

The pulse is modified in a thousand ways in inflammatory irritation of the stomach; but, in most of these instances, it is influenced through the medium of the heart. Thus it is, in many cases, languid and creeping, not exceeding forty beats in a minute in certain forms of chronic gastritis. These states of languid circulation exist with symptoms of chronic gastritis. I have now a gentleman and lady under my care who have this state of circulation with chronic gastritis; one of them has an aphthous state of the mucous membrane of the mouth and fauces, obstinate constipation, occasional nausea, with vomiting, flatulence, and acidity; pain and tenderness in the epigastrium are almost altogether wanting; he may be pressed rudely without occasioning more than a mere uneasiness, yet I consider this patient's as one of the most confirmed cases of chronic gastritis. In the case of the lady, the symptoms are still more obscure; uneasiness after food, with acidity, languor, rapid wasting, and a pulse not exceeding forty beats in a minute, are the prominent features of her disease. Both patients have been materially benefited by small local depletions from the epigastrium.

Broussais would say these states of disease were not sufficiently acute to irritate the heart. It is true they are not; but they are sufficiently formidable to disorganise the mucous membrane, and to perforate the stomach, which is a common termination of these latent forms of disease, the patients hardly fancying themselves, during the whole progress of the affection, which will last for years, more than slightly indisposed. I have traced the histories of some of

these cases ending by softening of the mucous coat and perforation of the stomach.

A languid state of circulation does not preclude the existence of chronic inflammation of the mucous coat of the stomach; in fact, it accompanies some of its most insidious, uncontrollable, and fatal forms. At other times the pulse is slightly accelerated; its frequency increasing towards the evening, at which time some slight accession of fever is present, sometimes attended with cough and flushings of the cheek, resembling perfectly the character of hectic fever depending upon disease of the lung.

In a third form of disease the pulse is intermittent. This may be present during the whole period of the continuance of the affection of the stomach, or it may only be observed when the inflamed condition of the mucous coat assumes a greater degree of severity, or becomes for a time more acute. I have carefully noted the cases of several patients, who are subject to attacks of severe inflammatory indigestion, at the time when they were in perfect health, and also during their attacks of disease. When well, nothing could be more natural than the state of the heart; when suffering from stomach disease the disturbance of the heart and circulating system has been so great that it has been difficult, even knowing the previous condition of these organs, not to suppose that their functional disturbance was the result of disease in the organs themselves. Where this disturbance of the circulating system is so easily occasioned, it shows a predisposition on the part of the heart to become diseased; and the continuance of stomach disease, either in a marked or latent form, would, in such instances, ultimately induce disease on the part of the heart itself. I shall relate the histories of three cases in which the patients died from diseases of the heart where no physical sign of such disease was, at the commencement of the complaint, in existence, and in which the primary symptoms were referable to the stomach alone.

I.—Of the association of Disease of the Stomach with that of the Heart, and of the influence which the former exercises upon the progress of the latter.

CASE 8.—Disease of the heart.—Fungoid ulcerations of the mitral valve, with inflammation of the mucous coat of the stomach.—Great relief afforded to the symptoms of the disease of the heart by mitigating that of the stomach.

A lady, aged thirty-four, was placed under my care in the month of September, 1835. She had before this period complained occasionally of palpitations, but nothing more had been remarked in the previous history of her disease.

September 8th.—On the first examination of the patient on this day I noticed the pulsations of the heart to be tumultuous, strong, irregular, and diffused over a great portion of the left side of the

chest. When examined by auscultation the impulse of the heart was very strong; a loud "bruit de soufflet" was present, which was distinctly heard all over the thorax. The pulse unsteady, fluttering, and indistinct, intermitting every third or fourth beat, and bearing no relation to the systole of the left ventricle. Orthopnoea, cough, frothy expectoration; legs anasarca to some extent. Pain and tenderness in the epigastrium, with constant nausea and vomiting of food; tongue dry and coated, vividly red at its point and edges. These symptoms are of comparatively recent date, during which time she has been much worse; they commenced with flatulence, pain, and distension after food, then the palpitations became more distressing, the breathing bad, and the legs anasarca.

September 14th.—Leeches have been twice applied to the epigastrium, and alkalies with morphia have been administered. The patient describes the palpitations to be much less distressing, hardly feeling them all. The tongue is clean, the sickness gone. The contraction of the ventricle and the pulse at the wrist now coincide, the one regularly following and corresponding with the other. The heart's action, examined by auscultation, is still remarkably strong, still diffused over a large surface, and still accompanied by a "bruit de soufflet," though of a much less intense character. It is evident that the mitigation of the symptoms of gastric disease has materially allayed the irregularity and force of the heart's action.

September 20th.—At the present date no gastric symptoms were present; the legs, however, were very dropsical, the breathing much oppressed, and the abdomen large and full. Small doses of elaterium were now administered, which relieved all these symptoms materially, but distressed the stomach very much, and brought on a return of the irregular action of the heart. To relieve the symptoms of gastritis, leeches were again applied, and the action of the heart again became steady; still there was a disposition to the return of the anasarca, with an oppressed state of the breathing. The elaterium always agreed with the patient, and relieved the dropsical symptoms without aggravating the state of the heart, when the gastric symptoms were kept under by the application of leeches to the epigastrium, which unloaded the congested vessels of the mucous membrane of the stomach, and brought it into a state to bear the impression of the elaterium. In this manner the patient's state was rendered comfortable till the 3d of October, on the morning of which day she died suddenly.

Post-mortem examination, thirty hours after death.—About ten ounces of serum were effused into the bag of the pericardium; large fibrinous clots in all the cavities of the heart. Heart hypertrophied to some extent; membrane of the left ventricle thickened to the consistence of thick writing-paper, easily stripped from the muscular structure of the heart; the edges of the mitral valve were covered with two large, dark-red, fungoid ulcerations. The stomach was immensely large, extending some distance below the umbilicus,

nearly filling the whole abdomen; the cardiac portion extremely thin, the mucous membrane had here almost disappeared; the pyloric portion of a uniform bright-red injection; the veins of the submucous coat much distended; here and there black patches, and arborescence on the mucous coat of the cardiac extremity.

Remarks.—This is a very instructive case, and illustrates many points of importance in the co-existence of diseases of the stomach with those of the heart. The nature of the disease of the heart, to which this patient fell a victim, was inflammation of the lining membrane of the left ventricle, and its terminations. I shall adduce some facts in the history of the next case which lead me to suppose that this inflammation, however frequently it may derive its origin from other causes, is commonly developed from continued gastric irritation. The present case principally illustrates two points in diseases of the heart—the state of the stomach during the progress of such diseases, the influence this exercises upon the heart's action, and the effects of remedies administered to relieve any particular state which may depend upon the disease of the heart, or to which it may give rise during its continuance, such as the anasarca, &c., in the present instance. If we enquire into the pathologic condition of the stomach, in the first place, we find it to be one of pure inflammation, varying in the effects which this has upon the stomach according to the irritability of the patient in whom the disease occurs. It is true that many of the changes which we find in the stomach, during diseases of the heart, are the consequences of mere congestion, owing to the mechanical impediment offered by the embarrassed state of the heart to the free return of blood from the venous system of the abdomen; but, at the same time that we find congestion in one part of the stomach, we find a pure inflammatory state existing in others. The mere appearances of redness observed in the stomach after death in diseases of the heart are not enough, perhaps, to enable us to determine of which exact character these changes may be, "since," says Andral, "we are convinced that this congestion may assume most of the shades of inflammatory redness." Broussais distinguishes congestion from inflammation in these states. If the affection be of an inflammatory kind the redness is not uniform, but irregular, vivid in points or arborisations, &c., and commonly combined with some of the consequences of inflammation, with induration, softening, or ulceration.¹ If we find during life vomiting, flatulence, uneasiness, weight, and tenderness in the epigastrium, we may be sure that gastritis is associated with the disease of the heart, and the continuance of the former, will only hasten the termination of the latter, and give rise to many symptoms which would otherwise be absent, caused by the additional embarrassment the disease of the stomach produces in the heart's action. We have a remarkable instance, in the case just detailed, of the effect which the mitigation or increase of the

¹ Cours de Pathologie, &c., tome iii., p. 125, 126.

gastric symptoms has upon the heart's action. We find the pulse at the wrist become steady and lose its intermission when the gastritis subsides, and return with the disturbance of the stomach. In many cases we shall find also anasarca and great dispnea coming on during diseases of the heart, associated with gastritis, which symptoms are commonly attributed to the disease of the heart, to which they certainly belong, but the state of the heart which gives rise to these symptoms is caused by the irritation to which it is subjected from the disease in the stomach. Mitigate or cure this, and we shall find the aggravated symptoms attendant upon disease of the heart disappear, and persons sometimes cease to feel they bear such disease about them.¹ A point of great importance, in the history of the last case, refers to the effects of remedies given to relieve the symptoms accompanying, or produced by, the heart-disease, such as anasarca, or the threatenings of effusion into the peritoneum, pleura, or pericardium. Thus, we see the use of the elaterium in the preceding case aggravate the symptoms, by increasing the irregularity of the heart's action; this arises from the effects this medicine produces in the stomach, adding to the irritation already existing in this organ. We observe this medicine to produce the good effects generally attributed to it in dropsy, whilst the gastric irritation is subdued by the local depletion from the epigastrium. It is a common circumstance, that stimulating diuretic and purgative medicines, given to excite the kidneys or bowels, during various dropsical states, which accompany diseased heart, produce a totally opposite effect to that which they are intended. We observe sickness produced, and the urine, already scanty, actually becomes more so, under the use of these remedies, whilst at the same time the dropsical symptoms increase. On the other hand, leeches to the epigastrium (if the symptoms are urgent), and remedies calculated to allay the gastric irritation, at once reduce the dropsical symptoms and increase the urinary secretion. The evils which are frequently attributed to the disease of the heart, very

¹ In a considerable number of cases, irritation of the stomach or of the intestines is announced only by local symptoms rather obscure; but this irritation reacts sympathetically on the heart, and the symptoms arising from the affection of the latter are very much aggravated. Thus its beats acquire unusual frequency, they become irregular and tumultuous; the difficulty of breathing increases: these symptoms, again, acquire for a time a higher degree of intensity every time that food is taken into the stomach. Among other instances, we saw an individual in whom the indigestion of simple drinks was immediately followed by difficulty of breathing, so that lying down was impossible; and for about two hours the patient was, as it were, threatened with asphyxia. At the same time that, under the influence of the gastro-intestinal inflammation, the local symptoms of heart-disease are increased in severity, we also see dropsy either manifest itself, for the first time, consecutively to the increase in the disturbance of the venous circulation, or become increased if it did exist before, or, finally, if, after having already existed, it had disappeared. These different symptoms become aggravated as long as the affection of the digestive tube exists, and they amend along with it.—*Andral.*

commonly arise from inflammatory irritation of the stomach, when affections of the former organ produce, as in most instances they do, disease of the inflammatory kind in the latter. I may observe, in concluding these remarks, that in diseases of the heart, whether acute or chronic, the state of the stomach should never be overlooked, since irritation, secondarily set up in it, most materially adds to the severity of the primary disease. Even during acute affections of the heart or its membranes, we sometimes observe this state of the stomach present, and the patients chiefly complaining of epigastric pain and tenderness, accompanied by vomiting.

A youth, aged twenty, subsequent to rheumatism, was seized with an acute attack of pericarditis. He was relieved by general bleeding, and leeches applied freely over the cardiac region; still, however, the symptoms did not entirely give way. During the progress of his disease, he had complained of a constant pain in the epigastric region, which was highly sensible to pressure; the stomach would retain nothing. Leeches were now applied over this region; the vomiting ceased, the action of the heart became steady and a perfect convalescence was speedily established.

Attacks of acute gastritis sometimes supervene in persons who carry about them organic affections of the heart. A lady, aged fifty-four, had suffered from palpitations for about ten years, accompanied by great dyspnœa and occasional faintness. The pulse at the wrist was merely an unsteady tremulous motion of the artery in which nothing like distinct pulsation could be detected. The action of the heart was diffused over a great extent of surface, the hand laid over it detected no impulse, a mere tremor was all that was perceptible; the stethoscope indicated an indistinct undulation, in which all the regular rhythm of the heart was lost. Occasionally this patient was seized with acute pain in the epigastrium, which was increased to agony by pressure. The stomach rejected, in a sour and bitter state, every thing taken into it. These symptoms recurred, without any marked cause, at intervals of some months, and were subdued by local depletion from the region of the stomach.

CASE 9.—A second lady, aged thirty-five, had presented all the symptoms of an organic affection of the heart for five years. These consisted in an unusually strong impulse of the organ, extended over a great surface, occasional irregularity of its rhythm, accompanied by a strong "bruit de soufflet," the pulse intermitting always at intervals of five or six beats. Every six weeks or two months, distressing attacks of vomiting set in, accompanied by great pain and tenderness in the epigastrium. During the continuance of the gastric symptoms, the pulse at the wrist was indistinct, merely an unsteady fluttering, whilst the action of the heart was strong and tumultuous; auscultation detected nothing but a powerful fluttering motion, in which all traces of the heart's natural action were lost. The patient, during the continuance of the gastric symptoms, could never rise from the bed, the faintness occa-

sioned by the violent disturbance of the heart's action was so great. When free from the stomach affection she was comparatively well. After this state had continued for four or five years, with little variation, symptoms of a regular tertian intermittent fever set in, accompanied by constant gastric derangement, pain and tenderness in the epigastrium, with occasional vomiting; anasarca succeeded, and the patient suddenly died, apparently from effusion into the pericardium, for dulness on percussion to great extent in the region of the heart was detected after death, which had not previously existed. Permission to examine the body was refused.

This case is another example of the influence which disease of the stomach exercises over that of the heart, in aggravating the symptoms of the latter and accelerating their termination. These coincident affections of the heart and stomach are a circle of morbid actions, in which it is difficult to fix a point of commencement; the disease of the stomach irritating the heart, and the affection of the latter causing congestions of the former, and predisposing it to inflammatory action. I have often found the veins of the submucous coat of the stomach, in diseases of the heart, as full of coagulated blood as though they had been filled with injection. In the case just related, as in that which precedes it, we notice the increased severity of the affection of the heart taking place whenever the symptoms of gastritis occurred; though, doubtless, the predisposition to disease in the stomach is occasioned by that of the heart, retaining in the coats of this organ, as I have previously stated, a greater quantity of blood than is necessary to the fulfilment of its functions.

CASE 10.—Gastritis—Softening of the heart.

An elderly female, aged sixty, came under my care, who had for many months had great difficulty of breathing, with daily vomiting of food.

When I first saw her on the 8th of December, 1836, she presented the following state:—pallid countenance with livid lips, legs anasarca to a considerable extent; the breathing very difficult. She could not take any kind of food without its producing pain and vomiting; the epigastrium was painful, and very sensible to slight pressure; the pulse at the wrist a mere tremulous motion of the artery, hardly to be called pulsation; the heart, examined by auscultation, presented merely a tremulous undulation, but no distinct sounds. She died suddenly, a few days after my first visit to her.

Post-mortem examination, twenty-four hours after death.—The stomach was one uniform mass of vividly red injection in its pyloric half; the cardiac portion black, with blood congealed in numerous patches; the veins of the submucous coat distended with blood. The spleen, four times its natural size, full of black blood; the vasa brevia as much distended with this fluid as though they

had been filled with injection. The liver greatly enlarged, pale, and hard. Heart so soft as almost to drop to pieces in the fingers ; its muscular structure very pale ; it might be rubbed away to a pulp between the thumb and finger.

Remarks.—This is a third example of that form of irregular action of the heart which stimulates valvular disease of that organ, and which appears to have been produced and kept up by continued gastric irritation. In chronic gastric diseases, which have continued for a number of years, it is common to find a softened state of the parenchymatous organs, generally similar to that which, in this instance, affected the substance of the heart. This softening is very commonly found in the liver, to such an extent that it may be rubbed away easily between the fingers. I have remarked this condition of structure in the spleen, the kidneys, the heart and the liver to be a common attendant on that cachetic state into which patients with long-continued chronic gastritis sometimes fall.

In the present instance, we notice it affecting the heart, the irregularity in the actions of which was evidently dependent on the softened state of its walls, they not being sufficiently powerful to cause a proper contraction of the ventricle ; hence the peculiar condition of the pulse.

II.—*General history of the influence of the Stomach upon the Heart, and of the state of the Stomach in diseases of the Heart.*

The first effects we shall notice of the influence of the stomach upon the heart are certain irregularities in the action of the latter organ, which are independent of any appreciable alteration in its structure, either as regards the consistence of its walls, the state of its valves, or its investing or lining membranes. These irregularities consist in an unusual frequency of its pulsations, or alterations of their character, in which the regular and natural rhythm of the heart is lost, the contractions of its cavities do not follow each other in their customary and due succession, and the pulse consequently intermits. We find many persons in whom both these states of the heart's action occur, without there being any organic affection of the heart itself, or even an approach to it.

The states of stomach which produce these irregularities of the heart's action are various, but may generally be referred to three classes ; 1. A state of mere hyperemia, or congestion of the mucous coat ; 2. A confirmed inflammatory condition ; or, 3. A morbid state of its sensibility. In some instances, as in case 1, we find an unusual degree of frequency in the heart's action after taking a moderate meal, which continues as long as the period of digestion lasts. I have occasionally been consulted by a gentleman, in whom the pulsations rise to as many as a hundred and ten or twenty beats in a minute. No fever accompanies this state : as long as the symptoms of stomach derangement are urgent, the action of the heart keeps up. This is relieved as the stomach becomes healthy ; but after its return to an apparently healthy state, the action of the

heart is again excited by food to almost its primitive frequency, which continues for some time after all the symptoms connected with the stomach have disappeared, excepting, perhaps, a slight degree of flatulence. This state of the heart is frequently accompanied by considerable tenderness, heat and beating in the epigastrium, and in such cases local depletion from this region is productive of great benefit. Occasionally, however, it happens, that the irritability of the heart continues, after eating, for some time, when the inflammatory or hyperemic conditions of the stomach, which accompany or produce it, have subsided : in such instances I have found the various preparations of iron of great service, combining them with anti-spasmodic, aperient, or sedative remedies, according to the circumstances of the case. The remedies should be suited to the nature of the stomach affection, upon which the excited action of the heart appears to depend. If the inflammatory symptoms are well marked, we must have recourse to a moderate depletion from the epigastrium ; if constipation, with flatulence and pain after food, a combination of the pil. aloes comp. with the pil. hyd., or pil. rhæi comp. with the galbani comp., and minute doses of the muriate of morphia, will be of service, taking at the same time the hydrocyanic acid ; the latter remedy is of great use, given in the mist. cretæ, if diarrhoea be present instead of constipation, or when great irritability of the stomach, accompanied by acidity, are the prominent symptoms.

In a second form of sympathetic irritation of the heart, we find irregularities in its actions, which are of various kinds. These irregularities display themselves in intermissions of the pulse, and tumultuous, hurried, and confused beating. We find that, in some persons, the pulse intermits every four or five beats, during the accession of an attack of stomach derangement, whilst, during the freedom from such attacks, the action of the heart is perfectly natural. In the cases of two ladies, who occasionally consult me, the heart presents these forms of intermission. In one of these cases, the pain after food, with beating, heat, and tenderness in the epigastrium, is always accompanied by an intermittent pulse : when well, the heart does not present the slightest irregularity in its beats, or any increase of force. In the second instance, the stomach affection is not so well marked ; but the intermittent pulse is a certain symptom that the stomach is affected, and, consequently, by attention to the latter organ, the heart resumes its natural and accustomed action. Not the slightest physical sign of disease can be detected in the heart in either of these cases. I have before said, that the symptoms of disease in the stomach are sometimes to be found in the heart : the last case to which I have alluded is a remarkable instance of this.

The two forms of intermittent pulsation, which I have noticed, are common, and doubtless depend upon a morbid condition of the sensibility of the epigastric nervous centre, sympathetically affecting the heart, and in such instances there is no reason to suspect

that any affection of this viscus is in existence, more than a mere derangement of the nervous system supplying it. "In a crowd of diseases," observes Andral, "in those particularly where the action of the nervous centres is more or less modified, the heart presents irregularities and well-marked intermissions." I have shown some varieties of these variations, as they affect the arterial circulation, at the commencement, and during the progress of fevers, which depend altogether on a modification of the sensibility of the nerves of the stomach and epigastrium. There are, however, sometimes cases occurring, in which all the tissues entering into the composition of the heart remaining healthy, the irregularities of its action heard under the stethoscope, and the character of the pulse at the wrist, precisely resemble those of organic disease. The second case of the preceding chapter, and that recorded by Cruveilhier and quoted in the notes to my own case, are examples of this form of disease. In both these instances, no disease was detected in the heart; even the state of its nutrition, the consistence of its walls, presented no appreciable morbid state.

In other instances, as in case 10, these tumultuous and irregular actions, and intermittent pulsations, coincide with an alteration in the structure of the walls of the heart, evidently produced by long-continued gastric disease. In acute and chronic gastric and gastro-enteric diseases there is, as I have before said, a peculiar tendency to the softening of some organs, particularly of the liver and heart: if we turn to the chapter on the Diseases of the Liver we shall remark many instances of this softened state of the organ. "In the conditions of which we are speaking," observes Broussais,¹ "the heart is sometimes so friable that the finger penetrates its walls with ease." In the subject of the tenth case, we noted that the substance of the heart was so soft, that we might rub it to a fleshy pulp between the fingers. It is most likely, that this state of softening is the result of a protracted irritation in the heart, marked, in the first instance, by the irregularities observed in case 2, which, after the continuance of such irritation for a certain period, terminates in the softening of the organ, as exhibited in case 10. In this manner do continued irritations ultimately produce alterations of the structure of organs, in which such irritations are set up; and, in the cases before us, these irregularities in the pulsations and action of the heart, are the result of complaint first seated in the mucous surfaces of the stomach.

When actual disease of the heart is in existence, manifested by the most unequivocal physical signs, we commonly find the state of the heart's action increasingly embarrassed, under the additional irritation produced by the occurrence of any morbid condition of the mucous membrane of the stomach, set up during the progress of the disease of the heart: the seventh case is a remark-

¹"Etat du Cœur, &c., dans les Gastro-entérites aigues."—Cours de Pathologie, Leçon 27me.

able example of this fact. The knowledge of this is of extreme importance in the treatment of all diseases of this character. The detail of the seventh case and the notes appended to it are well worthy of attention. We sometimes observe the symptoms of distress produced by the action of a diseased heart, under the influence of stomach irritation, mitigated or entirely removed by the relief or cure of such irritation. A gentleman, of middle age, who had suffered severely from attacks of acute rheumatism, complained to me of distressing palpitation, which incapacitated him for exertion, and produced hurried breathing and a sense of suffocation. On examining the heart its impulse was found much stronger than in the natural state, at the same time a loud "bruit de soufflet" was present. With these physical signs of disease of the heart the digestive powers were seriously disturbed; he had pain and tenderness in the epigastrium, nausea, distressing flatulence, and distension after food, with a full, hard pulse, a tongue dry and red, on which the papillæ were unusually red and developed. By removing the gastric irritation under which he labored, the palpitations and oppressed breathing disappeared; and although the state of the heart remained the same, as far as the physical signs of disease it exhibited were concerned, still all irregular action subsided, and the patient felt himself perfectly well.

When any impediment is offered to the free passage of blood through the heart, either from frequent irregularities in the action of this organ without any apparent disease, or from disease either of the acute or chronic kind, the mucous membrane of the stomach becomes the seat of certain morbid changes, which are dependent upon the mechanical obstacle to the circulation, presented by the disease of the heart. These may consist in mere redness, the result of congestion, or pure inflammatory affections, in which there are marked changes in the colour and consistence of the gastric mucous membrane¹.

¹ The same views are supported by Andral and Broussais.—"From the mere stagnation of blood in the mucous membrane of the stomach, which is merely mechanical, there results not only a red colouring of their tissue, appreciable after death, but, consecutively to this accumulation, there are also seen to arise real alterations of texture and remarkable symptoms. * * * But from the circumstance of the intestinal redness in aneurismatic patients being most frequently the mere mechanical results of embarrassment in the venous circulation, it would be a serious error to conclude that, every time this redness is observed, it recognises a similar cause. Often enough it seems to depend on a real inflammatory process, to which, in some cases, the venous congestion probably predisposes."—Clinique Médicale, by Spillan, p. 253, 254. "This redness is not the same in the two cases of mere passive congestion and inflammation. If the patient has died free from inflammation in the organs of digestion, the redness is uniform, and accompanied by a fulness of the veins, resembling an injected state of them. If, on the contrary, a true inflammation has succeeded to the congestion, which commonly happens when a due regard has not been paid to the sensibilities of the stomach and the state of the tongue, and strong diuretics have been exhibited, the redness is not uniform; but irregular,

The congestion or stagnation of blood alone, in the veins and membranes of the stomach, is sufficient, without any other cause, to disturb its functions, to render the process of digestion laborious, and to produce sympathetic affections in other organs of the body; but the disturbance of the digestive process, and the sympathetic affections which accompany it, are commonly more severe when other changes, resulting from inflammation, have been produced. It is most probable that the first morbid condition, produced in the coats of the stomach by diseases of the heart, is an accumulation of blood in its veins and mucous membrane, the result of a mechanical obstacle to the passage of this fluid through the heart; the constant presence of food and stimulating medicines, upon a membrane already irritated, convert what was at first a mere congestion into inflammation. The effects of elaterium, upon the subject of the seventh case, strikingly corroborate this view. In that case, when the vessels and coats of the stomach were unloaded by leeches applied to the epigastrium, before the administration of the elaterium, this remedy did not distress the stomach, but produced the happiest effects in relieving the dropsy. If the remedy were given, without previously leeching the stomach, it irritated this organ, produced vomiting, and added to the patient's distress, instead of relieving her.¹

Andral has remarked the frequent inutility and hurtfulness of digitalis, in diseases of the heart, that it frequently excites arterial action and produces sickness, instead of controlling and depressing the pulse. This arises from its being exhibited upon a membrane, already irritated by congestion or inflammation.

CHAPTER XI.

ON THE INFLUENCE OF MORBID STATES OF THE STOMACH, UPON THE ORIGIN, PROGRESS, AND TERMINATION OF DIS- EASES OF THE LUNGS.

PARTICULAR CASES.

CASE 1.—Incessant cough, depending on inflammation of the stomach, cured with the latter affection.

A healthy little boy, aged seven, was seized with shivering and the ordinary symptoms of fever, during the first few days of which

vivid, deep-coloured, pointed, arborescent, dispersed over the surface of the mucous membrane, and combined with other lesions, proper to inflammation, as induration, softening, or ulceration.”—Broussais, Cours de Pathologie et Thérapeutique générales, leçon 67, t. iii., p. 135, 136. Paris, 1834.

¹ “The unseasonable exhibition of different stimulating medicines, given for the purpose of exciting perspiration, urine, or stools.”—Andral.

no particular symptoms or complications were remarked. At the end of this period a short dry cough made its appearance, which increased to such an extent, that the young patient was never ten minutes free, night or day, from its constant irritation, for many days. It was in its character short and dry, unaccompanied by expectoration. During its progress he was reduced to an extreme degree of emaciation. The most careful and repeated examination of the chest detected no lesion in the lungs, their investing or lining membranes. Once or twice in the day there was slight sickness; the tongue was intensely red, its papillæ shining, elevated, and much developed; the bowels alternately confined and relaxed; the stools green as grass and scanty. The skin was hot and dry, the pulse one hundred and thirty: some slight uneasiness was experienced in the epigastric region, when examined by pressure, and the patient referred us to this point as the seat of his pain. On reflecting upon this case, I was disposed to consider the affection of the chest as a purely functional disease, depending upon an acute form of inflammation of the mucous membrane of the stomach, and probably of the duodenum. Eight leeches were applied over the epigastrium, and the patient took four grains of the hyd. c. cretæ every six hours, and in the intervals a drop of hydrocyanic acid in some almond emulsion. The plan was pursued for two days without much benefit, the patient still complaining of the stomach, the sickness and green stools continuing. Convinced that I was accurate in my diagnosis, the plan was still continued; leeches were applied daily in smaller quantities, and the same medicines were persevered in. At the end of the fifth day the patient was perfectly convalescent, although the disease had continued three weeks, and the child was reduced to an extreme degree of marasmus.

Remarks.—This is an example of a functional affection of the lungs, under the form of cough, produced and kept up by gastric inflammation. The features of the affection of the lungs, however, were so prominent, that the stomach disease was, in some measure, masked by it. The cough was incessant, and allowed the sufferer no rest; he was actually exhausted by its constant irritation, yet no physical sign of disease of the lung could be detected. Here we experience the value of auscultation, for, doubtless, had the remedies been directed to the relief of the pulmonary affection, the patient would have been lost. If we take into review the group of other symptoms, we shall find that they point to the digestive organs as the seat of disease. The state of the tongue, the sickness, the alternate constipation and diarrhœa, the character of the evacuations when passed, with the epigastric pain and tenderness, leave us no doubt as to the seat of complaint; the absence, also, of physical signs of disease in the lung, lead us to look upon that affection as purely sympathetic. The success of the plan of treatment adopted confirms the diagnosis; we have the satisfaction to observe the patient recover under its persevering use.

Case 2.—Cough dependent upon chronic Inflammation of the Stomach.—Cure with the Stomach Disease.¹

A young man, twenty-six years of age, had been troubled for four months with a dry, irritating cough, which had been in vain treated by the usual pectoral remedies: these had, in fact, rather increased, than mitigated, the disease. Suddenly he was seized with general fever, accompanied by lassitude, headache, nausea, and vomiting; at the same time the cough became much more frequent and distressing. The respiration was only slightly accelerated in the intervals of the fits of coughing; but whenever the cough came on, even if the fit was slight, the respiration became hurried and irregular. The cough, also, produced pain in the region of the stomach, which the patient was obliged to press with his hands, during the paroxysms, to give himself ease. Slight pressure upon the epigastric region brought on the cough, and produced considerable pain: a deep inspiration had the same effect. The chest was sonorous in all parts; the patient could lie in any position without producing any influence upon the cough, even since the fever had become violent, and the former so much increased in intensity. Such were the symptoms observed in the chest. On examining the state of the digestive organs and their dependencies, we found the epigastrium hot, tender, and painful on pressure; the tongue vividly red at its point and edges, its upper surface covered with a whitish pellicle; the throat and fauces were hot. Food of any kind when taken, even before the commencement of the fever, produced pain in the stomach and a paroxysm of coughing. The bowels had been constipated for some time; he had profuse perspiration occasionally, which, instead of procuring relief, accelerated the progress of emaciation; the mental constitution of the patient became much depressed, and the countenance hollow and anxious.

The aggregate of these symptoms resemble, very much, an organic affection of the lungs; but the absence of physical signs of disease in these organs, with the positive indications afforded of the inflamed condition of the stomach, pointed to this as the primitive and chief seat of disease.

Two relays of leeches, of fifteen at each application, were applied over the region of the stomach, domestic enemas were employed, and the patient was limited to a strict dietetic regimen. On the twentieth day of treatment he ate with impunity of a mixed diet; not the least symptom of any pectoral affection remained.

Remarks.—On examining this case carefully, we shall find that here, as in the last instance, there exist a class of symptoms indicating pulmonary irritation, combined with a second class referable to the condition of the stomach. For four months, we have a dry

¹ J. B. de Larroque, *De quelques Maladies Abdominales, qui simulent Maladies de Poitrine*, 2me. Obs. p. 12.

cough in existence, which is invariably produced by eating ; at the same time, the food occasions pain and uneasiness in the stomach. Suddenly the symptoms become acute ; we have fever, vomiting, pain in the stomach, epigastric tenderness, a red tongue, approaching to an aphthous condition ; whilst, accompanying this condition of irritation in the digestive organs, the cough becomes more active and tearing. Pectoral remedies in the first instance, before the onset of fever, do not allay the cough, they increase it doubtless by adding to the irritation already existing in the stomach. The absence of physical signs of disease in the lung are here, again, worthy of notice. The patient could lie in any position without increasing the cough, and the chest was every where resonant. The treatment, when the affection has become acute, is applied to the relief of the inflammatory affection of the stomach, and as this subsides we observe the symptoms of pulmonary irritation become less, and at length altogether disappear. The origin, progress, and termination, of disease in the chest, as well as the result of treatment prove beyond question that the chest affection was called into existence by the inflamed condition of the stomach, upon which it was strictly dependent.

The nature of the affection of the chest demands our attention : mere irritation of the lungs, under the form of cough, without expectoration. No symptom of any inflammatory affection, as bronchitis, pneumonia, or pleurisy. We shall observe, however, in pursuing our investigations, that these forms of pulmonary irritation, if continued, soon degenerate into one of the forms of inflammation I have alluded to, and are, in some instances, followed by phthisis, of which Andral, De Larroque, and myself, have reported examples.

Those forms of gastritis, which are accompanied by cough, become complicated the more easily with pleurisy or pneumonia, as the chest of the subjects is more irritable, and the paroxysms of cough more violent and frequent.¹

CASE 3.—Long-continued chronic gastritis, with cough.—Subsequently expectoration of a quantity of muco-purulent matter, to the extent of three half-pints daily.—Cure

A gentleman, aged forty-five, indulging freely in the pleasures of the table, had been subject to indigestion of the inflammatory kind for twenty-five years, during the whole of which time he had almost daily vomited some portion of his food ; in fact, this was the symptom for which he first consulted me. At the time of my first attendance upon him he presented the following state :—Sallow countenance, smooth red tongue, nausea, succeeding to

¹ De Larroque, Op. cit. See, also, the opinions of Dr. Stokes on this point Cyclopædia of Practical Medicine, art. Gastritis ; Lectures in the Medical and Surgical Journal, &c.

each meal, and terminated by vomiting; tenderness in the epigastric region, which was hard and resisting. The pulse exceeded a hundred, and there was a short, dry cough, without any expectoration. The patient, during the last few months, had become much emaciated. The respirations were generally free, but occasionally hurried and irregular. In all points the chest was perfectly resonant, the most careful and repeated examination by the stethoscope detected no disease. The symptoms continued much in this state for many weeks; sometimes the derangements connected with the stomach were relieved, at other times they were worse. The fits of coughing now terminated by the expectoration of a little slimy mucous; this went on increasing till upwards of a pint and a half of muco-purulent fluid was spat up in the course of a day and night. With this there was occasional vomiting; but, since the establishment of the free expectoration, the symptoms connected with the stomach had been decidedly ameliorated. After the continuance of the catarrh for many weeks, there did not appear to remain any stomach affection. Small doses of the dilute nitric acid were administered, and a combination of hyoscyamus and ipecacuanha given. Under this plan the patient gradually recovered from the affection of the chest, and with it disappeared all complaint in the stomach, from which this gentleman had never been free a day for twenty-five years.

Remarks.—In this case, several particulars are worthy of notice. All the symptoms, with which this patient had been troubled, through a long period, were evidently dependent on a chronic state of inflammation of the mucous coat of the stomach. The symptoms which denoted this condition of the stomach were unusually rebellious. They were palliated, and relieved sometimes for a week together, but again recurred with their primitive severity. At this period, the catarrh, with expectoration, set in: when the latter was fully established, the disease in the stomach began to subside, and ultimately disappeared. The catarrhal affection appears to have acted as a revulsive upon the disease of the stomach, and thus to have cured it. Occasionally affections of the chest and stomach alternate in this manner; we observe one subsiding as the other is aggravated. Andral, with his usual correct and penetrating observation, has observed cases of this character in consumptive patients, on which he remarks, that one organ acts, by way of revulsion, upon the other.¹ In many instances, however, the increase of disease in the stomach is attended by a corresponding aggravation of it in the lungs, as in the two first cases detailed.

CASE 4.—Sub-acute inflammation of the stomach, producing the symptoms of acute catarrh.—Cure of the pectoral, by the removal of the stomach disease.

J. E., thirty-two years of age, ill, for two years, with pain in the epigastrium, sickness, and occasional vomiting.

¹ Clinique Médicale, p. 529.

June 8, 1834.—Constant pain in the stomach, aggravated to a great degree by taking food, which is commonly rejected by vomiting; great tenderness in the epigastrium, the slightest pressure occasions most violent pain, which is confined to a small surface; the epigastrium hard and tense, feeling as though some resisting body lay under the muscles. There is no uneasiness whatever in any other part of the abdomen. The tongue is coated with a yellowish brown fur, red at its point and edges, the papillæ enlarged and florid. Countenance anxious and pale; extremities cold; pulse small and frequent; great irregularity of breathing, with constant cough and bloody expectoration; the stools occasionally streaked with blood. The patient was limited to a strict farinaceous diet; bottles of hot water applied to the feet; twelve leeches to the epigastrium. The leeches were repeated on the 9th, 10th, 11th, and 12th, to the same part, in less number, proportionate to the degree of complaint; on the 12th they were succeeded by a blister. On the 20th, the food, which then consisted of thin animal broth, occasioned no pain; no tenderness in the epigastrium on pressure; the difficulty of breathing had subsided, and there was neither cough nor expectoration. The patient, during the whole course of his disease, took no other medicine than a few grains of the ponderous carbonate of magnesia with morphia, when the acidity accompanying the vomiting was very intense.

Remarks.—This is another example of inflammatory disease in the mucous membrane of the lungs, succeeding to a similar condition of the mucous membrane of the stomach. In this case, we observe the stomach affection to have been in existence two years before the respiratory organs became affected. Complaint in both organs disappears, from remedies directed solely to the removal of the gastric disease.

CASE 5.—Inflammation of the stomach, simulating inflammation of the mucous membrane of the lungs.—Healthy state of the lungs ascertained after death.—Disease confined to the mucous membrane of the stomach.¹

A surgeon, aged twenty-four, who had occasionally been subject to severe colds and spitting of blood, became indisposed after breakfasting for a fortnight on bread soaked in wine. On the eighth day of his illness he presented the following symptoms:—General fever, loss of appetite, internal heat in the stomach, thirst, pulse full, hard, and irregular; he complained of pain in the chest and a sense of tightness across the epigastric region. He was restless, and continually drawing deep sighs. At the commencement of the complaint, he had spat a little blood; but, subsequently, he had been unable to cough fully, notwithstanding the irritation which continually prompted him to do so, on account of the excruciating pain which the force of the cough occasioned.

On the following day, the violence of the cough allowed him no

¹ Broussais, *Histoire des Phlegmasies Chroniques*, t. ii., p. 448.

rest. He then informed his medical attendant that, on the first days of complaint, the food taken had been rejected by vomiting. Leeches were now applied to the epigastrium ; they had the effect of relieving the pain in the chest and stomach, and almost entirely removing the cough. Some aromatic antispasmodic remedies were administered ; they were rejected by vomiting. Some acidulated gummy preparations were retained. During the remaining days of his existence, the chief circumstances remarked, were vomiting of the stimulating and cordial remedies, or an increase in the restlessness, anxiety, and distress of the patient when they were not vomited. Whilst these were rejected, the mucilaginous and acidulated medicines remained upon the stomach and appeared to afford relief. He died on the eighteenth day of disease.

Post-mortem examination.—The lungs and viscera of the chest, perfectly healthy. The stomach contracted to the size of the small intestines ; its consistence hard ; its mucous membrane thickened, of a deep dark red colour, approaching in many places to black. All the intestines were contracted, their mucous surfaces dry and of a bright red colour. The capillary vessels of the mesentery, also, much injected.

Remarks.—This is the first case detailed in which we have an opportunity of examining the state of the lungs and stomach after death, in diseases of the character of which we are speaking. The dissection shows us the lung and its membranes perfectly healthy, whilst the stomach and intestines bear the evidences of the most acute form of inflammation. Many of the symptoms of gastritis, in this case, were obscure, and masked by the pulmonary affection, which consisted in constant cough with occasional expectoration of blood. The bloody sputa may be explained by the state of congestion into which the lungs was thrown, consequent upon the violent irritation which produced and accompanied the cough : thus, blood might be exhaled upon the mucous membrane of the bronchiæ during the violence of a paroxysm. The effects of remedies should here be carefully noted ; the leeches to the epigastrium mitigated the cough most materially. The stimulant remedies (*juleps aromatisés et antispasmodiques*) added to the pulmonary irritation, as well as to the generel distress of the patient ; mucilaginous and acidulated drinks were taken with pleasure, and procured relief. When pulmonary irritation arises in the stomach, we may easily conceive of the increase of complaint in the lungs, occasioned by the impression of stimulating medicines upon a membrane rendered, by inflammation, “as sensible as an erysipe- latous skin.

CASE 6.¹—Catarrhal and pneumonic symptoms during life, dependent upon acute inflammation of the stomach.—Healthy condition of the lungs.

A man, previously healthy, entered the hospital Udine, suffering

¹ Broussais, *Histoire des Phlegmasies Chroniques*, tome ii., p. 459.

from rheumatism. After remaining there for some time, he was seized with cough and general fever. He at that time presented the following symptoms:—Frequent, sharp pulse, hot skin, patched cheeks, loss of appetite, dry coated tongue, with distaste for all kinds of drinks. He had, at the same time, constant fits of coughing, with copious expectoration and hurried breathing; no fixed pain existed in any point of the chest, but the patient indicated the right side, under the sternal ribs, as the point of deep-seated pain. He was supposed, by his medical attendants, to be suffering from acute bronchitis, and treated, accordingly, with leeches and blisters to the *chest*, to which were added some expectorant remedies. The patient died on the tenth day of the disease.

Post-mortem examination.—The lungs were free from disease, merely presenting a slight degree of congestion. The stomach was contracted, as in the last case, to the size of the small intestine; its mucous coat was thickened, and of a deep-red colour, deepening to violet towards the pyloric portion of the organ. The small intestines were contracted also, and red; the large intestines presented similar appearances.

Remarks.—The detail of symptoms during life are so loosely given by Broussais, in his account of this case, that without the account of the impression upon his own mind, that the patient was labouring under a bronchitis, approaching to a condition of general inflammation of the lung, we should be at a loss to determine on the nature of the disease. The dissection, however, clears all doubtful points. We find, on examination, the lungs healthy, excepting a slight degree of congestion; whilst the stomach and intestines exhibit marks of most intense inflammatory action. Here, as in the last case, the nature of the disease was misconceived; both were supposed to exist in the chest, but dissection shows that they were seated in the stomach and intestines.

Case 7.¹—Catarrhal symptoms, dependent on acute inflammation of the stomach.

A stout man, aged twenty-seven, entered the hospital Udine with cough and symptoms of indigestion. On the sixth day of disease he presented the following symptoms: Considerable dyspnea, patched and flushed cheeks, great heat of skin, a full, frequent, and hard pulse, constant fits of coughing, which followed each inspiration; the cough caused severe pain, and was accompanied by a frothy expectoration, tinged with blood. The patient complained of no fixed uneasiness, although the whole surface of the fore part of the chest was painful. The anxiety and distress were extreme; there existed a disgust for all kinds of fluids, whilst the mouth was very foul. The patient was bled in the arm twice, and two blisters were applied to the chest. On the eighth day of disease the anxiety, agitation, and the convulsive cough, continued; the little

¹ Broussais, Des Phlegmasies Chroniques, tome ii., p. 466, Case 3.

expectoration which existed at the commencement of disease had now ceased, and the cough was perfectly dry. To these symptoms were now added diarrhoea and tenesmus.

The patient sunk into a state of stupor on the sixteenth day of disease, the looseness of the bowels, and the general distress and agitation, continuing.

Post-mortem examination.—The lungs were adherent, but the adhesions were of old standing. Their substance was healthy, but congested. The stomach, in all parts, inflamed, of a deep violet colour, approaching to blackness towards the cardiac portion. Spots, resembling ecchymoses in the greater curvature, with thinning of its coats in this situation. Redness, at intervals, of the mucous membrane of the intestines.

Remarks.—In these three cases, which are detailed at great length by Broussais, he confesses himself ignorant as to the true nature of the disease, till the autopsy revealed it to him. He had a suspicion of the nature of the last case, and, acting upon this, abstained from the use of stimulating expectorant remedies, which had aggravated the condition of the two first patients. These cases, in a practical point of view, are highly important: we observe in them the general characters of gastritis wanting, the more prominent symptoms being observed in derangements of the organs of respiration. In the first case only, have we vomiting present; in the last, some diarrhoea. The pains were chiefly felt in the chest: in the second case, they existed in the right hypochondriac region. I refer the reader to the first part of this work, for details upon the uncertainty of the symptoms of gastritis; remarking here, that the pains which are symptomatic of this disease, are very commonly felt on some part of the surface of the chest. Broussais lays great stress upon the extreme anxiety, and restlessness of these patients, as features of gastric, rather than of pulmonary disease. No account is given of the condition of the bronchial mucous membrane in these cases; but we must not omit his remarks upon this omission:—"I am now convinced," says he, "that redness existed in the bronchial mucous membrane of these three patients, but it was not verified. The cough, although sympathetic, could not fail to produce congestion of these membranes, when frequently repeated. In this manner phthisis is produced by diseases of the stomach."¹ In this way, also, the bloody expectoration may be explained, as we shall see subsequently, in the details of some cases of incipient phthisis.

Having noticed the influence of inflammatory diseases of the stomach upon the lining membrane of the lungs, we proceed to notice some facts connected with their influence in the production of diseases resembling pleurisy.

¹ Op. cit., t. ii., p. 469. Note.

CASE 8.—Inflammation of the stomach accompanied by cough, assuming subsequently the rational symptoms of pleurisy.¹

A young man, aged 25, contracted a venereal affection, for which he was ordered to take the solution of the oxymuriate of mercury, commonly known by the name of "Van Swieten's Liquor." Perceiving no amelioration in his symptoms after a fortnight's use of the medicine, he increased the dose till he had taken, in the course of one day, three large spoonfuls of the solution. This produced violent pains in the stomach, incessant vomiting, giddiness, and general uneasiness; he abandoned the use of his remedy, and drank freely of diluents, the vomiting ceased, but the pain in the stomach continued. On the next day, an acute pain under the left breast came on, which appeared to be connected with that already existing in the stomach. This pain was accompanied by frequent and dry cough, a red tongue, and distressing thirst. The pulse frequent and hard; the surface of the body cold. The pain in the side was increased whenever the gastric symptoms were aggravated; pressure on the epigastrium, by adding to the uneasiness in this region, likewise added to that in the side.

Leeches were applied over the epigastrium, and the patient was placed in a warm bath. On the next day all the symptoms had disappeared.

It is evident that, in this case, the patient was suffering from acute gastritis, the result of an over-dose of the oxymuriate of mercury; the pain in the side, resembling pleurisy, being purely sympathetic. In the next case, we shall observe this kind of pain occurring after long-continued gastric irritation, and accompanied by irregular action of the heart, so that the disease resembled, in some measure, pericarditis, or a complication of pleurisy with some affection of the heart.

CASE 9.—Long-continued gastric irritation, becoming acute, accompanied by pains resembling pleurisy, and by irregularity in the action of the heart.

A gentleman had, for some time, suffered from nausea, loss of appetite, flatulence, and almost daily vomiting of food. He had, at the same time, cough, difficulty of breathing, and a sense of oppression seated over the centre of the sternum. There was considerable tenderness in the epigastrium, increased to acute pain by slight pressure. The stools were very dark. The action of the heart was also laboured and irregular, the pulse intermitting every five or six beats. Suddenly, these symptoms, which had been varying in their degree of intensity for three or four months, became acute; the oppression over the sternum increased, and was accompanied by sudden and acute pain in the right side, over the heart, the action

¹ De Larroque, Op. cit., c. i., case 5.

of which organ was much more embarrassed. With this, the tenderness and pain in the region of the stomach also increased in violence. The most careful examination of the lungs and heart, by auscultation, detected no disease : all the organs of the chest appeared healthy. The long continued symptoms of inflammatory indigestion, led me to conclude that the pain in the side and chest, with the condition in the heart's action, were dependent upon acute inflammation of the mucous coat of the stomach, suddenly supervening upon a chronic state of disease. The epigastrum was freely leeched, the hydrocyanic acid was given, at the same time, internally, with a combination of the carbonate of magnesia and Dover's powder. The oppression, the acute pain, the cough, and irregular and laboured action of the heart, ceased as the epigastric tenderness and pain were removed. After all the acute symptoms had subsided there remained occasionally a little irregularity in the heart's action ; this ceased from the administration of a few minims of the tincture of ammoniated iron, twice or three times in the day.

Remarks.—We observe, in this case, symptoms of chronic gastritis existing for several months, accompanied by cough, and irregular action of the heart. Suddenly, constricting pain in the chest comes on,¹ with oppression over the centre of the sternum, and with this, acute pain in the side, laboured action of the heart, and intermittent pulse. The stethoscope indicates no disease, either in the heart or lungs. The symptoms all disappear from a treatment framed for the removal of the stomach disease.

It is certain that Andral supposed in the following passage, that inflammation of the lungs might succeed to, and be dependent upon, inflammatory disease of the stomach. "In the acute state, in the diseases called continued fevers, the inflammation, congestion, or irritation, which exists in the gastro-intestinal mucous membrane, usually *extends* to the air-passages, whether, limiting itself to the great bronchial ramifications, it constitutes a simple catarrh, or, attacking the pulmonary vesicles, it is changed into a pneumonia. In the chronic state we may, again, observe the same simultaneous existence of disease."² Stoll has recognised the same morbid conditions of both organs under the title of "biliary pneumonia."

CASE 10.—Inflammation of the lungs complicated with and apparently succeeding to, that of the stomach—Cure of the pulmonary by the chief attention to the stomach disease.

J. G., an athletic man, states that he had been ill a fortnight at

¹ This constricting pain in the chest, with oppression over the centre of the sternum, is one of the most frequent incipient symptoms of gastritis, as well as of some forms of pneumonia. When the physical symptoms of disease of the lung are absent, these pains are generally symptomatic of some inflammatory affection of the stomach.

² Op. cit., by Spillan, p. 513.

the time of his first application for medical assistance. He then complained of acute pain in the epigastrium, with a sense of constriction ; the pain was aggravated to a great degree by slight pressure. Food, and drink of all kinds, added to his distress, and were constantly rejected by vomiting. There was no pain or uneasiness in any other part of the abdomen. The countenance was anxious, the tongue red at its point and edges, and the pulse small, frequent, and fluttering. There was considerable difficulty of breathing on slight exertion.

On carefully examining the chest by auscultation, there was a strong "rake crepitant" occupying the whole of the superior lobe of the left lung, most distinctly marked, both in the infra-clavicular, the axillary, and scapular regions. I disregarded the pain in the epigastrium and the constant sickness, and ordered the patient to be freely bled from the arm. The blood presented the usual characteristics : the clot was firmly contracted, and covered with a layer of lymph half an inch thick. On the succeeding day the patient's state was not at all amended ; the "rake" continued as intense, and the symptoms of gastric derangement were, if possible more urgent. Leeches were now applied to the epigastrium, and the patient took the smallest quantities of cold gruel. On the following day he was much relieved ; the difficulty of breathing and "rake crepitant," were much less, and had abated in direct proportion to the mitigation of the stomach disease. The local depletion was continued for a few days, and the patient continued the plan of abstinence, except from thin, cold gruel. On the tenth day of disease there was no sickness or epigastric tenderness ; he could take food without pain or distension : no difficulty of breathing, and no trace of any morbid "rake" in the lung. I believe I am correct in stating that this patient took no medicines during the continuance of his disease.

Remarks.—Whether the gastritis or the pneumonia were, in this instance, the primary affection, I cannot pretend to say, and it is of little moment ; it is plain there was inflammation of the two organs in an acute form. It is to be remarked, that the bleeding on the first day of the patient's application did not, apparently, benefit the inflammation of the lung, and certainly did not at all relieve the symptoms of gastritis. The first application of leeches to the epigastrium benefited both ; and this was the sole remedy that was afterwards employed. I should be inclined to believe, from the effects of the remedies employed, that the pneumonia was subsequent to, and dependent upon, the gastritis ; though, if the disease had been permitted to go on unchecked, it would not have been relieved, as it evidently was, by leeching the epigastrium alone. However this may be, the case shows that, in certain states, there exist sympathies between the lungs and the stomach, which render disease in one a cause of disease in the other. I think, on careful examination of the results of the treatment, there can be little doubt of the pneumonia having succeeded to the gastritis, which

became its exciting cause. The similarity of the next case renders this almost a matter of certainty.

CASE 11.—Pneumonia, with symptoms of gastritis.

J. H——, an athletic labourer, about forty years of age, became unwell on the 29th of December, with pain in the stomach and vomiting of food. At the time of his application he had constant sickness; the stomach rejected every thing that was taken; acute pain in the epigastrium, increased to agony by pressure. The breathing was hurried, accompanied by constant cough, and expectoration of frothy, brown-coloured mucus; the pulse small, frequent, and unsteady. On examining the chest by percussion and auscultation, it was observed that there existed a slight dulness over the middle lobe of the right lung. The respiration here was only distinct in places, and where it was evident, accompanied by a strong "rale crepitant." In the whole of the superior lobe of the same lung the "rale" was strongly marked. On the 30th his state was worse. The tenderness in the epigastrium was very great, although the sickness had, in some measure, abated. The right side of the chest duller on percussion than yesterday; the "rale crepitant" was strongly marked in places, but in many points the respiration was absent. Leeches were applied over the chest yesterday, and to-day the patient was bled from the arm.

December 31st.—The respiration more distinct in the upper and lower portion of the lung. The "rale" accompanying it in these points approaching more the character of the "rale muqueux." In the centre of the lung there is still absence of respiration in points, with a "rale crepitant" where the respiration is perceptible. Still excessive tenderness in the epigastrium, with occasional vomiting. Twelve leeches to the region.

January 1st.—The cough and difficulty of breathing much relieved. Pulse steadier and fuller, at seventy. The patient states that the relief afforded by the last leeches was greater than all the previous treatment.

On the 4th the epigastric tenderness and vomiting had disappeared; there was no hurried breathing, the pulse was steady and soft, there was little cough, the respiration was distinct in the superior lobe of the lung, absent in places in the middle and inferior, accompanied, where present, with a strong "rale muqueux." In certain places the respiration was distinct and natural without this complication.

Remarks.—This case affords another example of the complication of gastritis and pneumonia similar to the last, although the diseases, in this instance, appear in both to have been of a more acute character. We find the symptoms of pneumonia and gastritis both strongly marked, in this patient's case, on the first application for relief, on December 29th. On that day, and on the

30th, local depletion from the surface of the chest and general bleeding were resorted to, certainly with some effect upon the inflammation of the lung, but without much influence upon the cough and hurried breathing. On the 31st the epigastrium was covered with leeches, and at this period, although the disease was mitigated, which is evident from the physical signs afforded by the stethoscope, the sense of oppression and constriction which the patient experienced, with the hurried breathing and cough, did not abate till the application of leeches to the stomach. The patient stated that to himself he appeared no better till the application of leeches to this part, after which he expressed himself greatly benefited. I do not pretend to offer any opinion on the primary seat of disease in this case; whether one organ became diseased consecutively, and in consequence of morbid action in the other, or whether the affections were merely coincident. This is difficult to decide; but the effects of the treatment prove that the most marked benefit resulted to the disease in the lung from the remedies applied to the stomach, whilst the reverse does not appear to have been the case.

CASE 12.—Pleuro-pneumonia co-existing with acute inflammation of the intestines.—Injurious effects of the tartar-emetic.¹

A young man, aged twenty, of delicate constitution, was admitted into the Hotel Dieu on November 29th, suffering from pain on the left side of the chest, cough, difficulty of breathing, fever, and bloody expectoration. On the 30th he was bled in the arm. On December 2d the dyspnœa, the fever, and the pain in the side continued, as well as the bloody expectoration. The pulsations were one hundred; the respirations thirty-six in a minute. The signs furnished by auscultation and percussion were almost insignificant. The chest was a little duller on the left side than on the right. The ear detected neither crepitation, "souffle bronchique," or bronchophony. Twenty leeches were applied to the painful point on the side. On the 3d no amendment: the pulse and respiration were as frequent as on the 2d; the expectoration was not now bloody. In the axilla of the left side a slight "rale crepitant" was perceptible. The patient was again bled in the arm.

On the succeeding days of disease the difficulty of breathing became still greater, and the pulse kept up in frequency. The stethoscope furnished nothing more decisive than on the previous days of examination. The tartar-emetic was now ordered to be given in large doses, *notwithstanding pain which existed in the abdomen, and a relaxed state of the bowels.* The difficulty of breathing continued to increase, and the patient died on the 9th.

Post-mortem examination.—The superior lobe of the left lung was hepatised throughout, as well as a portion of the inferior lobe.

¹La Lancette Française, p. 10, "Clinique de M. Chomel, Hotel Dieu."

The tissue of the lung was hard and resisting, and did not present the least signs of softening. The pleura contained five or six ounces of sero-purulent fluid, and its surface was covered with a coating of lymph, recently effused. A few tubercles were found in the apices of each lung. The intestinal mucous membrane presented traces of acute inflammation.

Remarks.—I have shown, in the two former cases, that where pneumonic symptoms co-exist with inflammatory affections of the stomach and bowels, the effects of general bleeding, as well as local bleeding from the surface of the chest, are not attended with the usual well-marked beneficial results. In these cases no evident impression was made upon the difficulty of breathing, till the epigastrium was leeched. In this case of Chomel's the same effects are observed; the fatal issue of the disease was, doubtless, hastened by the exhibition of the tartar-emetic. This remedy is contraindicated in all cases where any gastric or gastro-intestinal irritation co-exists with inflammation of the lungs. "It ought also," says the editor of this case, "to be proscribed in pneumonia where there is reason to suspect the existence of tubercles; since, in a great majority of instances of this nature, a complication of disease, in some form, is generally found in the digestive mucous surfaces.

CASE 13.—A gentleman, aged forty, first became indisposed, some years before the present date (September 20th, 1835), with the following symptoms:—Pain and distension after eating, with nausea, and daily vomiting of food. These symptoms had continued, in a greater or less degree, for some months, when dry cough came on. On questioning this patient closely on the history of his disease, he informed me that he had been perfectly healthy till, about two or three years ago, his stomach began to swell after he had eaten his food, which was generally vomited. After the cough had continued for some time, it was followed by expectoration of frothy mucus. I had attended this gentleman at intervals for a long period; he had found most relief from a combination of the ponderous carbonate of magnesia with Dover's powder, and the occasional application of a small number of leeches to the epigastrium. On the last attendance, which terminated in his death, he presented the following state:—Earthy and sallow complexion; tongue vividly red, no coating, except a little towards the base; constant vomiting of every thing taken, whether solid or fluid, in an intensely acid state; the breathing was laboured and difficult, accompanied by constant cough and hoarseness; the epigastrium was painful, constricted, and exceedingly sensible to pressure. Six leeches were ordered to the epigastrium, and a twelfth of a grain of morphia administered every four hours, with ten of the carbonate of soda.

22d. Infinitely better. Can lie down in bed, which he has not done for a week; less cough; less difficulty of breathing; sickness gone. Slight epigastric tenderness still remaining, with

considerable fulness after food. Repeat the leeches. To take a combination of the ponderous carbonate of magnesia and the compound powder of ipecacuanha.

On the 28th, the symptoms became much worse. Constant cough, with occasional sickness, an intensely red tongue, with feeble, fluttering, unsteady pulse. During the remaining fourteen days of life, the stomach did not retain any solid food, and fluids were mostly rejected. For the last four days, the pain, sickness, and oppression, were so great on taking even fluids, that the patient merely wet his lips to ease the thirst, but dared not swallow them. He died on October 10th.

Post-mortem examination, twenty-two hours after death.—The lungs were filled with tubercles in all stages; the back part of the superior lobe of each lung contained several small caverns. Small drops of pus exuded from the cut bronchial ramifications, when the lung was compressed. Pericardium every where adherent to the heart. Liver pale and greatly hypertrophied, adherent to the spleen, its tissue breaking down every where under the slightest pressure of the finger. The stomach contracted to the size of the small intestines, quite empty, covered with a black viscid secretion; its coats thickened and hard, its mucous surface covered with dark-coloured patches, redness of the pyloric portion.

Remarks.—In this case, the patient was a perfectly healthy man till the occurrence of the first attack of inflammatory indigestion. We perceive this disease to have continued, and at length to have assumed the character of confirmed chronic gastritis. After the symptoms of stomach disease had lasted for some months, we observe dry cough added to the symptoms, and, subsequently, muco-purulent expectoration. In the advanced stages of disease, the chief complaint made by the patient was of his stomach, of the agonising pain which he endured till the food he had eaten was vomited, and the distress it produced in adding to the sense of oppression. The difficulty of breathing and the cough, with the beneficial effect produced on the organs of respiration by the local depletions from the epigastrium, and from the remedies employed to mitigate the stomach disease, leave little room to doubt that the disease of the lungs was produced by the prolonged and severe irritation existing in the stomach. I consider this a well-marked case of what has been termed dyspeptic phthisis. Louis, in his work *On Pulmonary Consumption*, has recorded two similar instances of disease in the lung succeeding to, and evidently produced by, prolonged gastric irritation. Andral's *Clinique* contains another well-marked case of this nature.

"A young girl had retained, after a profuse spitting of blood, a dry cough, and some oppression. She gradually lost flesh; she had no fever, had still some appetite, and attended to her usual occupations. There was reason for dreading, in her case, the existence of pulmonary tubercles, but nothing afforded any certainty of them. One day the patient felt a pain in the stomach;

she was attacked with vomiting, the tongue became red, fever was lighted up. The second day of the attack of the inflammation of the stomach the cough became more intense, and the patient, very much oppressed, spat a considerable quantity of blood. Under the influence of proper treatment the symptoms of inflammation of the stomach disappeared, and at the same time that they improved, the haemoptysis ceased, the cough became lighter, and the patient returned to the same state in which she was before the attack of gastritis. Two months after, the stomach disease again set in, accompanied by the same symptoms; in a little time after, spitting of blood also manifested itself. The gastritis againminated favourably, and with it the spitting of blood was observed to disappear. The pulmonary tubercles again seemed to remain stationary. Lastly, at the end of some months, new symptoms of inflammation of the stomach developed themselves, and, as before, the spitting of blood re-appeared with marked increase of all the symptoms of disease in the chest. The stomach disease quickly again disappeared; but this time the symptoms of disease in the chest, far from improving, became more and more severe, patient was soon brought to the last stage of pulmonary consumption, and died."¹

In this case, although it is probable that tubercles existed in latent state in the lung, (for nothing indicated their existence,) we observe them to remain stationary till the attack of acute inflammation of the stomach. Even the two first attacks of this disease left the patient much as she was before their commencement: on the occurrence of the third, the symptoms of phthisis were rapidly developed, and ran to a speedy termination. "From these facts we conclude," says the reporter of this case, "that acute inflammation of the stomach which supervenes, as a complication, in the first period of pulmonary consumption, may exercise a most mischievous influence on the progress of the latter disease."

CASE 14.²—Inflammation of the stomach producing cough, succeeded by tubercular consumption.

A lady, twenty-two years of age, born of healthy parents, had complained, for about two years, of a dull pain in the region of the stomach, when, after a series of untoward circumstances, her digestive powers became more seriously disturbed. The pain which she suffered from taking food was so great, that she was reduced to the necessity of living upon milk and farinaceous food, ripe fruits, and some kinds of vegetables. If she took more substantial food, the gastric irritation became extreme, and was only relieved by three or four days of rigid abstinence, and the use of demulcent drinks. Two years from this date, owing to great mental uneasiness,

¹ Clinique Médicale, by Spillan, p. 519.

² De Larroque, Op. cit., p. 58, case 10.

ness, the symptoms became acute. Severe vomiting of green fluids set in, with violent and increased pain in the region of the stomach, spasms, and cold perspiration. This fresh attack yielded to the same treatment; but now it left behind it a dry cough, which occasioned so much pain in the stomach that the patient, during the paroxysm, was obliged to press the region with a napkin. The cough, which was at first dry and by fits, was soon accompanied by mucous expectoration and slight pains in different parts of the chest. After these symptoms had continued three months, the expectoration assumed a purulent character; the cough was not more frequent, but it produced still increasing pain in the stomach, over which region the slightest pressure caused pain so severe that the patient could not forbear crying out. The point of the tongue was red, the respiration hurried, the percussion of the chest obscure, whilst there was an inability to recline on either side. The patient now became hectic, had night perspirations and slight diarrhoea, and died at the end of a month from the date of the account of the last symptoms.

Post-mortem examination.—The right lung contained several small caverns, and a number of tubercles not yet softened; the left lung hepatised, red, and adherent to the parieties of the chest; the mucous membrane of the bronchiæ slightly injected. The mucous coat of the stomach was covered by a false membrane, similar to that observed occasionally in the mouth; under this membrane, it was of a deep violet colour, which deepened towards the pyloric portion. The duodenum and small intestines presented traces of inflammation.

Remarks.—On reviewing the history of this case, we find the symptoms of gastric derangement, arising from a series of moral impressions, preceding the symptoms of pulmonary irritation for two years. It was not till the attack of acute inflammation that the disease of the stomach became complicated with cough and pain in the chest. The cough, by its violence, added to the distress of the patient and the uneasiness already existing in the stomach. We note again, that the cough was at first dry, resembling that which, in a great number of instances, accompanies various forms of stomach derangement, whether of the inflammatory or subacute kind; soon afterwards, it is followed by mucous, and subsequently with purulent expectoration, whilst other symptoms, indicating the extension of disease from mere nervous irritation to organic change, make their appearance. The commencement and progress of this case, lead us to place the origin of the pulmonary disease in the stomach.

CASE 15.¹—Chronic inflammation of the stomach, with diarrhoea, preceding the symptoms of disease in the chest for eleven months.—Termination in pulmonary phthisis.

A man, aged thirty-four years, entered the hospital of La Charité, complaining of having been indisposed for a year and a half. He had not been able to follow his usual occupation for five months; and attributed the origin of his complaint to severe mental distress, occasioned by some pecuniary losses. The disease had commenced with total loss of appetite and looseness of the bowels. He had neither had nausea, vomiting, or fever, but, with the symptoms before complained of, some pains in the region of the stomach. Suddenly, and without any evident cause, he was seized in the night with spitting of blood, to the amount of half a pint; this came on again two days afterwards: it yielded to the exhibition of acidulated drinks. Cough, with expectoration, difficulty of breathing, and vomiting, succeeded; the diarrhoea ceased. From this period the patient continued weak, and the pulse small, feeble, and slightly accelerated; exacerbation of fever in the evening, night perspirations. The respiration approached the cavernous character at the summit, and round the whole of the chest on the left side. Slight expectoration, with considerable emaciation. A month afterwards the nausea and vomiting ceased, and the digestion was improved; the difficulty of breathing was also much amended: the patient, however, continued very weak. The cough and vomiting again reappeared, and the appetite again became bad. During the remaining period of his existence the appetite continued variable; diarrhoea set in once, but was speedily checked. The patient continued to sink, and died with the physical symptoms of the softening of tubercles six weeks after the last relapse.

Post-mortem examination.—The superior lobe of the left lung contained two large caverns at its summit, whilst in other parts of the substance of this lobe smaller caverns, partially emptied of tuberculous matter, existed. The inferior lobe contained also some crude tubercles. On the right side the same kinds of lesion were found, but to a less extent. The mucous membrane of the trachea and bronchiæ was inflamed, and had small ulcerations in parts. The mucous membrane of the stomach was of a yellow colour in its cardiac portion, more or less gray over the remaining part of its surface; the gray colour was interrupted, in certain points, by small white patches, where the mucous membrane was considerably thinner than in the natural state. A small ulcer existed midway between the cardia and pylorus. Ulcerations in the small and large intestines.

Remarks.—In analysing the progress of the symptoms in this case, we observe it to have commenced in mere indisposition, the

¹ Louis, Recherches sur la Phthisie, p. 326, Case 21.

result of grief from pecuniary loss ; this indisposition is marked by loss of appetite, pain in the stomach, and diarrhoea, the ordinary symptoms and concomitants of various forms of what is called indigestion. "At this period," remarks Louis, the affection of the lung did not appear to be in existence." Suddenly spitting of blood occurs, the breathing becomes bad, and cough, with expectoration, appears ; at the same time the stomach symptoms become more serious, vomiting, which had not previously been present, is added to the pain in the stomach and the loss of appetite. We observe the patient to amend after this, although he still continued weak; suddenly the vomiting again set in, with the cough, and the symptoms of disease in the chest became aggravated. From this period the patient continued to sink, with all the physical and rational signs of disease in the lungs. We note the most remarkable features in this case : that the dyspeptic symptoms (the result of mental uneasiness, which so commonly produces such symptoms) were in existence eleven months before the least appearance of disease in the chest was evident, or before even it was suspected ; and, again we remark both the first attack of spitting of blood, and his relapse after partial recovery, to have been accompanied with an increase in the symptoms of the disease in the stomach, marked by the vomiting which accompanied both these occurrences. The state of the stomach after death, sufficiently accounts for the phenomena observed during life. In this case it certainly appears that the disease in the chest was, in the first instance, produced by the gastric irritation, which terminated in ulceration of the coats of the stomach. The relapse, which ultimately proved fatal, also appears to have been owing to an increase in the severity of the stomach disease.

RECAPITULATION AND GENERAL HISTORY OF DISEASES OF THE STOMACH, IN THEIR INFLUENCE UPON THE ORIGIN, PROGRESS, AND TERMINATION OF DISEASES IN THE LUNGS.

In the detail of the preceding cases, we have seen that an inflamed or irritable condition of the mucous membrane of the stomach and bowels exercises a marked influence upon the condition of the lungs and their appendages, whether in reference to mere functional derangements in the organs of respiration, or in the production of various forms of hyperemia and inflammation, which, in many instances, terminate in incurable organic disease.

We shall first enquire into the nature of the symptoms which indicate the commencement of pulmonary irritations, which depend on an inflamed condition of the lining membrane of the stomach. Two of the most common symptoms which denote the commencement of affections of the lung arising from this cause are, a pain

in the centre of the sternum, with a sense of constriction and oppression across the chest, and cough coming on after eating.

We sometimes find persons who have no appetite, a foul tongue, a disposition to a relaxed, and at other times to a constipated, condition of the bowels, complaining of pain and oppression in the centre of the sternum and fore part of the chest, with a dry, irritating cough, which becomes invariably aggravated by a meal.

The epigastrium, in many cases of this kind, is not at all sensible to pressure: it may be handled and pressed without any uneasiness being produced. In other instances, however, epigastric tenderness co-exists, but it is not essential to the existence of chronic gastritis or hyperemia that it should do so. I met with a remarkable case of this kind in a gentleman who had occasionally been seized with violent sicknesses and diarrhoea, at long intervals, during a period of three or four years. These were soon removed, but the tongue remained constantly foul; and though the patient took food he had never any appetite for it. He was neither well nor ill, had a sallow cast of countenance, and always a disposition to relaxed bowels, with a dry cough, becoming worse after dinner. His food never disagreed with him, never caused him pain, was never vomited, except at the periods mentioned, and he never felt sick; yet I was convinced this patient was suffering from chronic gastritis, and felt assured that, sooner or later, it would manifest itself in some marked form, as he lived freely. I met him by accident one day, and he complained of pain in the chest, with oppression, and increased cough; in all other points he remained much the same. In the evening of that day acute inflammation of the stomach came on; the epigastrium, before indolent, was now so sensible that he could not bear a finger upon it, the tongue was become vividly red, whilst the pain in the chest and oppression were so great that he could not breathe without difficulty; at the same time, the bowels, which were before relaxed, became obstinately costive. From freely leeching the epigastrium for four or five days, the tongue became clean, which it had not been for twelve months, and all the symptoms of thoracic disease, cough and pain, were removed.

In other forms of disease, the acute form of inflammation of the stomach is never assumed. Thus we see, in delicate females, the cough after food, with pains in the chest, masking all the symptoms of gastric disturbance, which are often obscure, continue month after month, with progressive emaciation. If auscultation be not understood by the practitioner in attendance, it is difficult, nay, impossible, to determine whether the disease be pulmonary or not. It is concluded that it is so, since the symptoms of such disease are well marked, stimulant expectorants, or tonics, are resorted to, which only aggravate the symptoms, and the patient sinks from a suspected chest affection, which, on examination after death, is found not to exist, and the seat of the disease is found to be the stomach. Broussais' cases are examples of errors of this kind: he

was deceived in all three cases, merely suspecting that the disease which appeared bronchial, in the last case, might possibly be gastric. The first case of the fifteen given in this part of the work is a well-marked example of the irritation which arises in the lungs, the consequence of inflammation of the stomach, whilst the proper and customary symptoms of the gastric disease are masked or altogether absent. Many of the cases of gastritis recorded by M. de Larroque, in his work on Diseases of the Abdomen which simulate, produce, or keep up Diseases of the Chest, were marked by this peculiar symptom of dry cough, increased by taking food.

Accelerated respiration is another symptom observed in the functions of the lungs, which is dependent on disease in the stomach. In many cases, even where cough, pain, and tightness exist in the chest, the number of respirations are not at all quickened : the patient can inspire deeply without pain, or without increasing the cough. But in other instances the breathing is quickened : there is a peculiar catching at the breath, a deep inspiration occasions pain, and brings on cough. These symptoms, still more than those we have been considering, appear to indicate pulmonary disease ; yet still these are found to depend on gastric inflammation, and no physical sign of disease in the lung can be observed to account for the production of these symptoms. We have commonly observed children to be suddenly seized with fever and short breathing, precisely resembling the rational signs of pneumonia ; yet, in analysing the state of the organs in the chest and belly, I have been convinced that this hurried breathing, with catching, when the diaphragm was depressed by an inspiration, depended upon inflammation of the mucous coat of the stomach, and not upon any lesion of the organs of respiration. Sometimes, in these cases, children will complain of pain in the belly ; at others there may be vomiting present ; or diarrhoea, with green, frothy, offensive, or parti-coloured evacuations. Again, all these signs may be absent, the difficulty of breathing present, yet no physical sign indicating an affection of the lung. In such instances I agree with De Larroque that the vivid redness of the point and edges of the tongue, with the general fever, are the chief indications of gastric inflammation. I have noted numbers of these cases occurring in children, continuing for a shorter or greater length of time, and exasperated or not amended by medical treatment, cease promptly on the application of one or two relays of leeches to the epigastrium.

The chief symptoms, then, of the commencement of pulmonary irritation, as a consequence of gastric disease, are dry cough, increased by food during digestion, and by stimuli ; pain on some point of the thoracic parietes, oppression, constriction of the chest, with accelerated or irregular respiration. These may exist with gastric irritation, and without any evident affection of the lung to account for them ; or they may be found with both pulmonary and stomach disease. We will enquire for a moment into the mode of their production.

When inflammation of the mucous coat of the stomach becomes a source of irritation to the lungs, it may be propagated in several ways; 1. The existence of dry cough with irregular states of the respiration appears to depend on irritation of the gastric extremities of the pneumo-gastric nerve. In some instances of this kind Lobstein has found the branches of this nerve inflamed.¹ In other forms the trunk of these nerves was enlarged and hypertrophied to a great extent, as in the fourth and fifth cases of cancer of the stomach related by Dr. Lombard of Geneva.² In most instances of this kind the disease appears limited to mere irritation of the pulmonary branches of this nerve. 2. Irritation may be propagated from the stomach to the lungs, in accordance with that law which disposes diseases to spread by similarity of tissue; and thus we find, after death from gastric inflammation, accompanied by cough or other symptoms of derangement in the organs of respiration a pinky, congested, or inflamed state of the bronchial mucous membranes. This explains also the bloody expectoration observed during acute forms of gastritis, and the profuse hemoptysis to which they sometimes give origin, which in many instances, marks the first invasion of phthisis. This bloody expectoration was well marked in the fourth case; and an example of hemoptysis thus produced, and terminating ultimately in phthisis, is exemplified in a case quoted from Andral in the notes to the thirteenth case, one of phthisis succeeding to inflammation of the stomach. 3. The affection of the chest may depend upon an inflamed condition of the peritoneum lining the inferior surface of the diaphragm. De Larroque has reported a case, in which such a condition of the diaphragm, coincided with severe gastric inflammation.

Where the affection of the lung commences as it most commonly does, in mere nervous irritation, it does not long continue in this form, since the violent fits of coughing and the continuance of irritation ultimately induce a congested, and subsequently an inflamed, condition of the mucous membrane of the bronchiæ, of the substance of the lungs, or the pleura. We have examples of most of these states coinciding with, or succeeding to, gastric diseases, in the detail of the preceding cases. Thus, in some were observed a true bronchitis; in others, a congested state of the lung, without inflammation; whilst, again, the signs of pneumonia were present. These facts teach us to note well the progress of the symptoms, both physical and rational, which accompany cough and disordered respiration evidently of gastric origin, since, in many forms, the disease in the lung is not limited to mere nervous irritation, but quickly and insidiously progresses into various inflammatory affections,

¹ *De Nervi Sympathetici Fabricâ, Usu, et Morbis, Commentatio, &c., p. 152, 153, 154.*

² "Clinique Médicale de l'Hôpital Civil et Militaire de Genève," par H. C. Lombard.—*Gazette Médicale de Paris, Janvier, 1837.*

which, if there be a tubercular tendency, may ultimately degenerate into phthisis.

It happens, in many instances, that cough, disordered respiration, and progressive wasting, the result of chronic inflammatory disease of the stomach, exist without any physical sign of disease in the lung being present, upon which these symptoms can be said to depend; and although the affection may very much resemble organic disease of the lung, yet the stethoscopic signs afforded by examination of these organs at once convince us that they are free from complaint (Cases 1, 2). In these cases it is easy to ascertain, that this affection of the chest is dependent upon the condition of the stomach, by the symptoms of disease which the latter organ presents, in the state of the tongue, of the digestive powers, and that of the epigastrum. In circumstances, however, where we are not called to the patient till late in the disease, where the primitive state of irritation in the lung has proceeded to one of inflammation or its consequences, and these coincide with a marked diseased condition of the stomach and other organs concerned in the digestive process, it becomes a matter of great difficulty to ascertain in which organ disease has at first commenced.

Inflammatory diseases of the stomach, which complicate those of the lungs, may originate simultaneously with the affection of the chest, and from the same cause. The disease of the stomach may be primitive, and that of the lungs secondary; or the disease of the stomach may succeed to that of the lungs. But, at whatever period the affection of the digestive organs may have appeared, it is not less influential in its effects upon the organs contained in the chest. This remark derives support from the history of the preceding cases, but more particularly from the 1st, 2d, 10th, 11th, and 13th cases.

I was requested to see a lady, aged 22, who laboured under the following symptoms:—great difficulty of breathing, constant pain in the epigastrum, aggravated by pressure, uneasiness after food terminating in vomiting, universal “rôle sonore” in all points of the chest, alternating in places with the sibilant and mucous rales. This was evidently subacute inflammation of the stomach, occurring at the same time with a similar condition of the mucous membrane of the lungs. Leeches were ordered to the epigastrum, and a combination of the ponderous carbonate of magnesia administered with Dover’s powder, in the proportions of half a dram of the former to five grains of the latter, three times a day. No other treatment was employed, and under this she speedily recovered. Dr. Copland has alluded to the frequent simultaneous occurrence of disease in the mucous membrane of the lungs and that of the stomach.¹ These complications, also frequently pass from the subacute to the chronic state together; thus we often see, more particularly in children, diarrhoea, with vomiting, accompanying cough, quick-

¹ Dictionary of Practical Medicine, p. 253, and note.

ened breathing, and the physical signs of bronchial disease. In such instances, all remedies calculated to excite the digestive mucous surfaces should be avoided, particularly all forms of antimonial remedies with squills, and the usual syrups or balsams, since they, by adding to the irritation already existing in the stomach, are more likely to increase than diminish the co-existing affections of the chest. I have generally found in such states the mist. cretæ, with the opiate confection and hydrocyanic acid, or a combination of hyd. c. creta with pulv. ipecac. co., succeed better than any other remedies, at the same time leeching the epigastrum, if the gastric symptoms are urgent, or using counter-irritants to the chest with local depletion, if the pectoral symptoms become predominant. The digestive mucous surfaces must not be irritated. I cannot too frequently press upon the reader the importance of this, since their sympathies with the lungs in so many forms of chest disease are so marked, as we shall still further see in their complication with various forms of pneumonia.

In some forms of inflammation of the mucous coat of the stomach, which produce disease in the lungs, we observe, as in case 3, the affection of the stomach to cease after the establishment of disease in the chest, terminating in profuse expectoration. Andral has noticed the alternation of disease between the lungs and intestinal tube, in certain forms of inflammation. He, as I have done in the remarks on that case, considers the secondary disease to act by way of revulsion upon the first.¹ Thus as in the third case, the affection of the stomach, which had not yielded to remedies, diminished when the disease in the chest was fully established, and ceased altogether when free expectoration set in. Inflammatory affections of the stomach in this way occasionally relieve similar forms of disease in the lungs. We must not, however, attempt to imitate, by artificial means, these inflammations of the digestive surfaces, which occasionally seem to relieve the disease in the chest when they occur subsequently to the affections of the lungs, since, in a great majority of instances, the cough and expectoration are increased by the inflammation of the stomach and bowels, and the difficulty of breathing, more particularly, becomes aggravated, as we may observe by perusing the details of the tenth, eleventh, and twelfth cases.

Occasionally the symptoms of chronic inflammation of the stomach are accompanied by dull pains in either of the sides, under the mammae, or in the cardiac region. At times, these pains become suddenly acute, and when accompanied by cough and inability to dilate the chest for free inspiration, they have the character of pleurisy. I have never seen these pains, when occurring with marked symptoms of stomach derangement, exhibit, on examination, any of the physical signs of pleurisy, although they have continued for weeks, or even months, and in some instances are never

¹ Clinique Médicale, by Spillan, p. 529.

absent during the continuance of the stomach disease. Sometimes irregular action of the heart, with intermittent pulse, is attendant on these thoracic pains. I have seen leeches and blisters applied over the seat of pain fail in giving relief, when the stomach has not been attended to; whilst, again, local depletion from the epigastrium, with the exhibition of the hydrocyanic acid, or other remedies suited to the particular features of the stomach affection, have seldom failed in relieving these sympathetic pains. Cases 8 and 9 are examples of these forms of disease. I have seen similar acute pains seated on the scalp, resisting every mode of local treatment, yield only to remedies calculated to remove the gastric disturbance upon which they depended.

I have shown, in the details of the tenth, eleventh, and twelfth cases, that pneumonia is frequently complicated with inflammation of the mucous coat of the stomach. This complication was first described by Stoll, under the term "biliary pneumonia;" it is a complication of a subdural, irritative, or inflammatory state of the stomach, with inflammation in the substance of the lungs, the affection of the stomach being characterised by nausea, vomiting, a loaded tongue, red at its point and edges, yellow tinge of the countenance and conjunctivæ, with pain and tenderness in the epigastrium; whilst in the lungs the physical symptoms of pneumonia are present. The disease in the lung may be subsequent to, and dependent upon, the gastritis, or the two may be ushered in together. I remember being called to attend a person who, in a state of intoxication, had laid down upon the grass and fallen asleep. Previous to this occurrence he had been in the most robust health; he did not remember ever to have been sick, and had never had a cough or shortness of breath. On the next morning he was seized with acute pain in the stomach, with constant vomiting of every thing he swallowed. This continued to increase for ten days; at the end of that time I first saw him. He had then acute pain in the epigastrium, increased to agony by pressure; incessant vomiting, cough, short breathing, constriction and pain across the chest. On examining the chest, the respiration was absent in the middle and inferior parts of the right lung, except that here and there the slightest murmur was detected; in the apex of the same lung it was more distinct. He was bled in the arm: the blood presented the usual characters of inflammation. Leeches were applied, also, to the stomach, and he took an occasional dose of calomel and opium. By a perseverance in the local depletion from the epigastrium, and opiates from time to time, the gastric disturbance was so far subdued as to enable him to retain the milder kinds of food upon his stomach; but the short breathing, with cough and frequency of pulse, (one hundred and twenty,) continued. I saw the patient at intervals, for twelve months; during this time his state continued much the same; the cough, the difficulty of breathing, the absence of respiration in the greater part of the right lung (to which was now added dulness on percussion) continued, with attacks of severe vomiting whenever any errors in

diet were committed. I noted his state particularly, thirteen months after the commencement of the acute disease, it was as follows:—September 28th, 1835. In the superior lobe of the right lung the respiratory murmur was audible, absent in the middle and inferior; dulness on percussion, hoarseness, occasional loss of voice, constant acidity, nausea, with vomiting almost daily. The pulse intermits, but there is no evident affection of the heart. He has derived great benefit lately from the application of four or six leeches to the epigastrium, and taking internally the ponderous carbonate of magnesia with the compound powder of ipecacuanha. All the complaint is of the stomach ; and in proportion to the relief afforded to the gastric symptoms is there amendment in the short breathing and hoarseness.

In some instances, the pneumonia may succeed to the gastritis ; but in all instances where there is a complication of these diseases, the contra-stimulant treatment of inflammation of the lungs by the antimonium tartarizatum is inadmissible. A medical friend, in my absence, observing the marked symptoms of chest disease of the inflammatory character in the last case, administered the sixth of a grain of this remedy, three times a day, to the subject of it ; the aggravated state of the gastric symptoms, consequently developed, was so great that there was some difficulty in subduing them, while the respiration became, under its use, still more embarrassed. We observe the ill effects of its exhibition in the history of the twelfth case, where the fatal issue was, doubtless, hastened by its use. The general and local abstraction of blood, with subsequent counter-irritation on the surface of the chest, are the only means left to us to combat inflammatory affections of the lungs, thus combined with similar conditions of the gastric mucous membranes. The tenth and eleventh cases cannot be too attentively studied. In both these instances the general bleeding, as well as that locally employed from the surface of the chest, appeared to have some effect upon the inflammation of the lung ; but still the disordered respiration was not relieved. This might depend as much upon the gastritis as the pneumonia ; for we observe it yield, in a marked manner, to local bleeding from the epigastrium. It is, again, extremely probable, from what we have seen of the influence of the stomach upon the lungs, that the gastritis itself would, by the irritation it occasioned in the chest, act as a stimulus in keeping up the pneumonia ; certainly the inflammatory symptoms in the lungs yielded much more quickly after the gastric symptoms had been subdued.

Cases 13 and 14 are examples of tubercular phthisis, developed after continued gastric irritation. The work of Lonis contains two cases of this kind ; that of De Larroque two. Andral also mentions the history of one or two cases of tubercular disease of the lung, succeeding to a continued inflammatory condition of the stomach. I have myself seen four examples of inflammation of the stomach, commencing in the symptoms of inflammatory indiges-

tion, and thence progressing into confirmed chronic gastritis, terminate, at periods of an earlier or later date, in true tubercular phthisis. I have given, in Case 13, a detail of one of these cases. In that case, the treatment directed to the stomach alone exercised a marked influence over the more distressing symptoms connected with the pectoral disease. The occurrence of repeated attacks of inflammatory indigestion or of diarrhoea in persons exhibiting any predisposition to affections of the chest, or where there is any hereditary tendency to phthisis, should excite our most watchful attention. If we analyse the symptoms of every case of indigestion not amounting to a chronic gastritis, even in its faintest shade, which comes before us, we shall find a great majority complicated, in a greater or less degree, with cough. Fulness of blood in the coats of the stomach, or an exalted state of the sensibility of its nerves, has a particular tendency to the production of this symptom. In some it follows a meal, and continues during the period of digestion; in others, pressing the epigastric will produce it; in a third series, dry, short cough is constantly present.

I know not whether a morbid sensibility to impression in the mucous surfaces of the stomach is accompanied by a similar condition of the same parts in the lung; but I am certainly inclined to such a view of the subject. "We are convinced by observation," says Andral, "that persons affected with chronic enteritis, have a fatal tendency to pulmonary phthisis. We think we should never neglect, by active means, to combat the colds with which they are affected, however slight they may appear. Too often, in this case, temporising has been fatal; in consequence of it, a slight bronchitis has rapidly given rise to numerous tubercles. It is certainly a matter of every-day occurrence to witness persons who have a stomach habitually sick, or bowels constantly loose, at the same time troubled with constant colds, and a dry, short cough."

The cough, which is the result of gastric irritation, is sometimes succeeded by hemoptysis, after which tubercles are quickly developed, as in the remarkable case quoted in the note to Case 13; we there see the spitting of blood produced by, and subsiding with, the symptoms of gastritis. Sometimes a true bronchitis, with bloody expectoration, is the consequence; at others, a congested state of the lung. Stoll has observed a great number of these hemoptyses, the result of inflammatory irritation of the stomach. We must be at once aware of the evil tendency of such conditions of the lung, where there exists a predisposition to phthisis, or where tubercles exist in the latent state. Even this continued irritation in the lung would, as it has done in some cases, produce a disposition to phthisis, which is quickly developed from a repetition of irritations in the stomach of the same kind.

The symptoms of gastric irritation sometimes continue, in the chronic form, for months, and even years, before they become complicated with any signs which would lead us to suspect any affection of the chest. I have notes of cases continued for a series of

years, in which chronic disturbances of the organs of digestion were alone observed, with a short, dry cough. Auscultation has indicated nothing for a long period, and the progressive emaciation has been attributed to some organic change in the stomach; in time, however, the physical signs of tubercular disease in the lung have been set up, and the patient has soon sunk from this fatal complication of disease. I have noted one case of this kind for three, and a second for seven, years.

In another form, the disease is more quickly developed. I attended a lady, previously in the most perfect health, who had been suddenly seized with pain in the stomach, vomiting of food, and other symptoms characterising an acute gastritis. The more acute symptoms were subdued, but the affection passed into the chronic state; and at the end of twelve months she died, phthisical, with large caverns in both lungs.

We deduce from these facts two important considerations:—
 1. Inflammatory irritations of the digestive organs are readily, under certain circumstances, transmitted to the lungs, where they may become the source of various diseases, as cough and disordered respiration, bronchitis, pneumonia, hæmoptysis, and even tubercular phthisis. 2. Diseases of the lungs are frequently complicated with an inflamed condition of the stomach; and in framing a treatment for the relief of the former, we should be careful to avoid the use of remedies which would exasperate the latter.

CHAPTER XII.

ON THE INFLUENCE OF MORBID STATES OF THE STOMACH UPON THE ORIGIN, PROGRESS, AND TERMINATION OF DISEASE IN THE BRAIN.

The brain is not less influenced in the integrity of its functions, by disease of the mucous surfaces of the stomach, than are the liver, lungs, and heart; and in many instances the sympathetic affections of the former organ are of as much, if not of more, importance than those we have already considered.

In many instances these are manifested, during life, by infinite varieties of condition of the reasoning and intellectual powers, from mere irritability of temper, to confirmed lunacy or mania. Sometimes stupor is present; at others, pain in the head, with excitement. The functions of the senses are impaired or exalted, whilst, in more aggravated forms, the disease of the head progresses into profound coma, or terminates in convulsions or varied partial paralyses, and changes in the sensibilities of different parts of the skin.

It is hardly possible to determine upon what exact pathologic

condition of the stomach these varied forms of irritation in the brain depend. Sometimes a mere hyperemic condition is detected after death in the former organ; again, confirmed inflammatory conditions are present, with various changes of colour or consistency. As in the stomach, so in the brain; varied pathologic changes are detected after death, upon which the symptoms observed during life are dependent.

These changes, however, are not sufficient to account for all we observe. The organic lesions are, doubtless, combined, in both organs, with certain conditions of excitement in the nervous system, which produce many of the symptoms observed during life, but which anatomy does not enable us to appreciate in the dead body.

I have, in a previous part of this work, shown that the process of digestion is accompanied by a flow of blood into the mucous coat of the stomach, which places this organ, during the continuance of this function, in a state of active congestion. This active congestion is the first form of inflammation; and hence it is that we find the process of digestion, in many persons, influencing the condition of the brain in the same way that active congestion of the stomach, or inflammatory affections of this organ, do at other periods.

The affections of the head that accompany the progress of digestion are most commonly those of vascular turgescence (cerebral congestion), and are evidenced by a great variety of symptoms. Thus, many persons become so drowsy after a meal that they are unable to keep awake; others are tormented with an intense frontal headache; a third series experience a total inability to the performance of any intellectual act, and are completely stupid. If we examine the condition of the circulation at these periods, we shall find the action of the carotids much increased, both in frequency and force, and the head much hotter than at other times. "There can be no doubt," says Andral, "that, in those who are predisposed, the process of digestion favours the return of congestion of the brain; to a slight degree of these congestions may be attributed the drowsiness exhibited by some persons after meals. With respect to diseases of the stomach, they possess, in certain cases, a manifest influence on the development of cerebral congestions. Thus, at all ages, and particularly in infancy, acute gastro-intestinal affections may be accompanied by symptoms announcing the presence of an undue quantity of blood in the brain. The same happens, though less frequently, in chronic cases."

I shall give some examples of the milder, as well as of the more severe forms of cerebral affections, consequent upon gastric disturbance.

CASE 1.—A gentleman, aged thirty-two, was suddenly seized with nausea and vomiting of food, which had continued for some

¹ Clinique Médicale, by Spillan, p. 81.

days. He had at the same time great heat and tenderness in the epigastrium; he was giddy, the vision was cloudy and indistinct, and he had a constant ringing in the ears. All the symptoms, both those connected with the head and those connected with the stomach, disappeared from two applications of leeches over the epigastric region.

This is an example of a slight cerebral congestion, succeeding to a sub-acute affection of the stomach, of an inflammatory kind. In this instance, we observe the conditions of the brain to be relieved by removing the gastric irritation which produced it. In many instances, particularly if any disease have previously existed in the brain, this apparently trivial derangement of the stomach might have produced a fatal termination in the brain, as I shall show by some of the following cases.

CASE 2.—A gentleman, of middle age, consulted me for what appeared to be an attack of sub-acute gastritis, or active hyperemia. He had daily vomiting of food, some fever, with great heat and tenderness in the epigastric region. For some time before the occurrence of the symptoms in an acute form, he had been troubled with flatulence, and great distension of the stomach after eating, accompanied by palpitations, throbbing of the carotids, stupor, and a total inability to exercise any mental or intellectual process. As the symptoms connected with the stomach became more acute, the faculty of memory was totally lost; yet, during a state of health, this gentleman was remarkable for the strength and clearness of his intellect. No remedies afforded any marked relief except the application of leeches to the epigastrium; the mind became clearer, and the stupor abated as the blood flowed from the region of the stomach.

This case, as well as the last, exhibits a form of vascular fulness in the brain, removed by curing the inflammatory irritation of the stomach which produced it. In many instances, however, the state of the brain will become the special object of our attention, since the symptoms connected with it, although called forth by the stomach affection, are more alarming than the primitive disease to which their origin is due.

We have seen the influence of the process of digestion upon the brain, and those states of active congestion, at other periods, which resemble it. In persons who consume large quantities of animal food, and malt, vinous, or spirituous liquors, the state of active congestion, or hyperemia of the stomach, becomes constant; this, however, may occur from other causes, and from none more frequently than from strong mental impressions. These, first received by the brain, and then transmitted to the nervous centres of the epigastrium, first exalt the sensibility, and then, by the exercise of a natural law, determine to the stomach an increased quantity of blood. Here is now produced a permanent centre of irritation, which, as long as it continues, reacts upon the brain, and disposes that organ likewise to irritation.

Let us examine the influence of both these classes of causes existing in the stomach, and sympathetically affecting the brain.

I have shown the influence of the former, that is, of active congestion, or hyperemia of the stomach, the result of the stimulus of food, upon the brain, in the two cases detailed at the commencement of the chapter. The second class now demands our attention.

CASE 3.—Influence of a diseased condition of the stomach, the result of moral impression, upon the brain.

A lady, aged 25, suffered from a series of domestic afflictions for some time, having lost one or two relatives, to whom she was tenderly attached, from phthisis. Her health now began to decline, she had some hysterical seizures, to these succeeded nausea, vomiting, a disordered condition of the bowels, accompanied by wandering pains, and an occasional diarrhoea; settled uneasiness in the epigastrium and the two hypochondria, with heat, tenderness, and continual beatings. After the continuance of these symptoms for some time, she became affected with weight, pain, and throbbing in the head, fits of mental irritation, flushings of the face; suddenly she lost the use of the right side. These symptoms were continued in a variety of forms, through a series of five or six years. She was placed under my care, and at that period presented the following state. The hemiplegia had nearly disappeared, she could walk well, but the pain and throbbing in the head, the thirst, flushing of the face and occasional numbness of the limbs, made her fearful of a return. The head was continually hot, the seat of severe pain on the vertex, with occasionally violent and sudden darting pains through it, which made the patient scream out; the carotids and temporal arteries throbbed violently, and the pulsations were seldom less than a hundred.

On examining the epigastric region, the first thing that attracted attention was a violent pulsation; of this beating she continually complained, as the source of her chief uneasiness. This part was full, hot, exceedingly tender on pressure, and the seat of internal pains shooting into the hypochondria, where she had also fixed uneasiness.

The stomach and intestines were become so morbidly sensible to impression, that every thing she took produced pain, sickness, and very frequently vomitings, there was constantly an intensely acid taste in the mouth. The bowels were scantily evacuated daily, but the stools were dark, and very offensive, and the patient entertained so great a dread of aperient medicines, that, for the first week she remained under my care, I was afraid to administer them. As there appeared no disposition to amendment, and as each meal was followed by an aggravation of the symptoms both in the head and stomach, I determined to give a mild cathartic. Four leeches were placed over the region of the stomach, and five grains of the hyd. c. creta, with five of rhubarb, were given in a pill at bed-time.

The medicines produced severe griping, and were followed by seven or eight evacuations, as black as pitch, and much resembling it. The succeeding evening, they were again given, discharges of a better character were obtained, and much less pain was produced by their operation. The remedies were repeated every night for a week, whilst the patient adhered to a mild, unstimulating diet of farinaceous food. At the end of this period she had no nausea, sickness, or pains in the stomach or bowels, the epigastric pulsation had disappeared with the tenderness and heat; the mind was calm, the throbings and pain in the head were gone, it was become cool, and the arterial pulsations did not exceed seventy. The patient was in fact well.

Remarks.—This case may serve as a type of a certain class of diseases in which we observe the mutual reaction of the brain and stomach upon each other, and the patient suffering from a class of symptoms which are dependent upon irritation in both organs.

We observe the disease of this lady to have commenced in mental disturbance, to this succeeded attacks of hysteria, which, during the paroxysms, were treated by the free exhibition of stimuli of various kinds, æther, brandy, various antispasmodics, and in the interval a generous diet was followed to give the patient strength; we observe, in the first instance, that the brain, excited by the mental distress of the patient, produces by sympathy a corresponding degree of exalted sensibility in the nervous centres of the epigastrium, and in the stomach.¹ The free exhibition of stimulating medicines, and a rich diet, in such a state, tend to change what was at first a mere exalted condition of the sensibility into an active congestion of blood. At this period we find nausea, vomiting, pains after food, fulness and heat in the epigastrium, tenderness on pressure over the region of the stomach and liver, and other symptoms, indicating increased determination of blood to the organs concerned in the function of digestion. This, kept up by rich diet and stimulants, now reacts upon the brain, and in conjunction with mental emotion, produces an active congestion in this organ, under the influence of which we have pain, weight, and fulness of the head, ringing in the ears, dim vision, &c. which terminates in the loss of power over the right side,—the patient becomes hemiplegic. From the irritation existing in the stomach,

¹ Bichat (*Recherches sur la vie et la mort*) has placed the seat of the passions in the organic life, i. e. in the nervous system supplying the stomach and its dependencies. Georget, (*Physiologie du Système Nerveux. Maladies Nerveuses*,) on the contrary, has seated them in the brain. It is plain, however, that the mental emotions here alluded to are the result of impressions first made upon the brain, and thence immediately transmitted to the nervous system supplying the stomach and abdominal viscera. Thus we find that impressions received first by the brain, become permanently seated in the stomach, the condition of which is every hour modifying that of the brain:—*La correspondance entre la membrane muqueuse de l'estomac et le cerveau est telle que les modifications de cette membrane paraissent être celle du cerveau lui-même.*—Broussais, *Commentaires*, &c. t. i., p. 152.

the bowels become costive, and their secretions scanty and impaired. In this state the patient continues, with some variation, for nearly six years, presenting, at the end of this period a permanent condition of irritation in both the brain and the stomach, the former, as the results of the treatment prove, being now dependent almost altogether upon the condition of the latter. An unstimulating diet, mild aperients, and the application of a few leeches to the epigastrium, speedily relieve the patient, and we find a disease, which had been kept up by gastric irritation for years, give way immediately that irritation is removed. It is in this manner that the stomach becomes the centre or receiver of irritations from other organs, and by its own irritations, thus produced, keeps up disease in other parts, when the causes producing the first affection have long ceased to act. A permanent state of active congestion of the mucous membrane of the stomach tends to keep up a permanent and an undue fulness of blood in the vessels of the brain.

We may here enquire, whether this permanent state of cerebral congestion in cases of hyperemia of the stomach or of gastritis, is kept up through the medium of increased force and frequency in the actions of the heart, or whether it is dependent on a direct transmission of irritation from one organ to the other. It may occur in both ways. There are certain forms of disease, commencing in hyperemia, or inflammatory conditions of the stomach, in which the brain is thrown into a state of congestion under the influence of the heart, acting with increased force, and driving the blood to the brain with an impetus which is inconsistent with the integrity of the structure and functions of the latter organ. In these instances the heart may be perfectly healthy, acting with increased force under the irritation kept up in it by confirmed affections of the stomach; or, on the other hand, it may be itself diseased, its walls thickened, and the unusual force with which it would thus act upon the brain, may be still farther increased by gastric irritation.

CASE 4. A gentleman, aged fifty-three, consulted me in 1836, for unpleasant symptoms connected with his stomach, stating himself to have been subject to indigestion for twenty years. He had pain, weight, and uneasiness in the region of the stomach after eating, with acid eructations; the stools dark coloured, and scanty; the epigastric region and the right hypochondrium full, hot, and tender on manual examination.

After eating, he was subject to considerable stupor, with pain, throbbing, and weight over the back part of his head; at these periods he was totally unable to attend to business from the stupor that came over him. He was also tormented occasionally with an almost uncontrollable venereal appetite when the head was thus affected. On examining the heart, I found the impulse unusually strong, and diffused over a great extent of surface, a strong "bruit de soufflet" was also detected.

This patient was placed upon a mild farinaceous diet; the food

was given in small quantities at short intervals, so as never to distend the stomach or interfere with the action of the heart; eight leeches were placed over the epigastrium, and combinations of the pil. hyd. with rhubarb, followed by a solution of the sulphate and carbonate of magnesia in mint water, were exhibited. By this treatment the stomach soon became tolerably comfortable; the unpleasant symptoms connected with the head were materially lessened, and altogether disappeared from cupping the back of the neck. The state of the heart remained the same; I merely remarked that its impulse was less.

Remarks.—In this case we must note the state of the stomach, that of the brain, and that of the heart. There can be no question but that the disordered state of the former organ was dependent on, or connected with, a degree of permanent fulness of blood in it. In the brain we note, also, the symptoms of a permanent congestion, verging almost to the apoplectic condition after eating. In fact, the face used to assume a purple cast after meals. The hypertrophy of the heart must have influenced the congestion of the brain materially in this case; and, independent of the direct relation between the brain and the stomach, the heart, in such instances as the present, powerfully modifies the state of the brain. The stomach, however, is the organ through which the chief influences are impressed upon both heart and brain. Thus the process of digesting a full meal, in a stomach already morbid, first irritates the heart by increasing the force and frequency of its pulsations, and then modifies the circulation in the brain through the medium of the heart. The stomach, also, acts directly upon the brain through the media of the sympathies which connect them, independently of the influence which is exercised over the latter organ through the medium of the heart.

I have shown, in the preceding cases, the influence of the stomach upon the brain in certain circumstances. These circumstances were a healthy condition of the brain, and a diseased one on the part of the stomach. I shall now illustrate the influence of the stomach upon the brain, where disease exists in both organs. It must be borne in mind, during the whole of these remarks, that the process of digestion is, as I have before frequently stated, one of hyperemia, or of active congestion of the mucous membrane of the stomach; this hyperemia varying in degree and extent, in direct relation to the quantity of food taken, and to its stimulating properties. This active congestion is repeated or reproduced in the brain as long as it continues in the stomach, in two ways; by the direct action of one organ upon the other, or through the intervention of the heart. We need only analyse the condition of the organs, after a full meal, to be convinced of this. The arterial excitement, the stupor or drowsiness, the variations in the condition of the intellectual powers after a full meal, are dependent upon this cause.

As I have before said, this state of the stomach produces, during its continuance, a corresponding congestion in the brain, which

subsides when its exciting cause no longer ceases to act, in other words when digestion is completed. This daily repetition of evanescent congestion in a healthy brain, perhaps does no more mischief than predisposing to permanent states of affection of the head, on the occurrence of slight exciting causes; but, where disease exists already in the brain, the return of every meal threatens a fatal form of congestion.

CASE 5.—August 14, 1835. A man aged forty, of intemperate habits, had some years previous to the present date, a fall upon the head during a state of intoxication, and a year since, a second. These falls were succeeded by occasional headaches. Four days prior to the present date, he was seized with vomiting, diarrhoea, and severe pain in the region of the stomach after eating some indigestible food. During the continuance of these symptoms he complained of giddiness. On the third day from the commencement of sickness and diarrhoea, he ate freely of cucumber, and a mixture of other aliments. After the meal he felt drowsy and stupid; this increased, and, during the night, he fell into a state of profound coma. He remained totally insensible to impressions of all kinds: one thing only appeared to affect him, this was pressure upon the epigastric region. When it was done, he experienced slight convulsive motions of the limbs, which could be brought on as often as the hand was laid with moderate force upon the stomach. He was bled from the arm; twenty-five leeches were applied behind the ears, and upon the temples; and some croton oil was given. The remedies afforded no relief; he died about thirty-six hours from the commencement of the stupor.

Post-mortem examination eight hours after death.—Great thickening of the dura mater covering the posterior third of the cerebral hemispheres. The membranes were here all so completely amalgamated that they could not be separated from the substance of the brain without bringing portions of it away with them. The central white portions of the brain studded every where with red points, from which oozed great quantities of thick black blood. The orifices of some of these vessels would easily have admitted the point of a small crow-quill. The lateral ventricles contained about an ounce and a half of turbid serum. On the inferior surface of the left middle lobe was found a softened portion of brain about the size of a walnut, of the consistence and appearance of curd, which fell out on raising the encephalic mass. The other parts of the brain were remarkably firm and healthy.

The mucous membrane of the stomach was vividly injected, covered in its pyloric half, more particularly, with intensely red dotting and arborescence.

Remarks.—We have seen in the preceding cases, that a temporary state of congestion is induced in the brain after a full meal, during the whole time the digestive process continues. In these instances the fulness of blood in the brain is merely a repetition in that organ of what exists in the stomach. The affection of the

head, whilst the brain and its membranes are healthy, strictly depending upon the state of the stomach, soon reassumes the natural condition when digestion is finished, or when the fulness of blood in the mucous coat of the stomach has disappeared. Not so, however, is the state of things when disease exists in the brain or its membranes, independent of any influence impressed upon them by gastric irritation. These old standing diseases of the brain, as in the present case, are, as Andral has well observed, so many thorns, which are continually irritating the brain and determining congestions, variable in degree and intensity. We observe, however, in the present instance, which may be taken as the type of a class, that the cerebral congestion, determined by the disease of the brain, never affected the patient, as long as the stomach was healthy, more than by occasioning severe headachs. Under the influence of irritation existing in the stomach, we see the congestion in the brain augmented to a fatal degree, and the patient die comatose during a state of cerebral congestion. The subject of this case never complained of giddiness even, till the vomiting and diarrhoea came on; he then suffered from giddiness and stupor, which increased to profound coma as the gastric irritation progressed, and became aggravated.

This case shows that a full meal, which determines, whilst the brain is in a healthy state, merely so much blood to it, as inclines to a degree of drowsiness and stupor, may, when disease exists in the brain, cause a congestion of a character sufficiently intense to occasion death.

Richond¹ has detailed three cases of this form of gastric apoplexy, if I may so express myself; cases in which the patients after having suffered from chronic affections of the stomach and liver for a longer or shorter period, suddenly fell victims to apoplexy, when the disease of the stomach assumed a more acute form. I have, in the preceding cases, sufficiently explained the manner in which attacks of apoplexy or fatal cerebral congestion take place after prolonged irritation of the stomach of the inflammatory kind.

I must again call the reader's attention to the fact, that the process of digestion is one which determines into the coats of the stomach a flow of blood proportionate to the quantity of aliment taken and to its quality; that which offers most resistance to the action of the gastric fluids promotes the greatest flow of blood, and causes the greatest irritation. Thus it will be perceived that the process of digestion of large quantities of food differs but little from that primitive morbid state of the stomach I have described in this work under the title Hyperemia (excess of blood, not combined with the tissue of the organ in which it takes place, and consequently not strictly of an inflammatory character.)

¹ De l'Influence de l'Estomac sur la Production de l'Apoplexie.—Paris, 1824. Similar forms of apoplexy or fatal cerebral congestion have also been observed by Schroeter, *De apoplexiâ ex præcordiis vitiis, &c.* and Koch, *De apoplexiâ biliosâ.*

CASE 6.—A little boy, aged ten, had been indisposed for some weeks, he suffered from occasional fits of stupor, and once in every two or three days had a slight convulsion. The convulsions increased and at length occurred daily after dinner. At this meal he ate voraciously, and consumed large quantities of animal food; fell asleep immediately he had dined, and awoke convulsed. He was directed to take daily a grain and a half of calomel, with four of rhubarb, and his food was given to him in very small quantities at stated periods. He had no return of his convulsions after this plan of treatment was established.

Remarks.—This case, not of unfrequent occurrence, is adduced as an example of hyperemia of the stomach, consequent upon the digestion of large quantities of stimulating food, producing a similar condition of the brain under the influence of which convulsions are excited. The hot and sensible stomach, the stupid and heavy head at once prove this to be the pathologic state of both organs. Here we observe no disease except what the state of the stomach during digestion produces. By reducing the quantity of food, so as to lessen the degree of excitement in the stomach during digestion, all the evils give way. If, on the contrary, the same manner of living had been continued, it is highly probable that the complaint, already excited in the head, might have terminated in serous effusion, or a fatal form of congestion of blood.

There are other forms of cerebral disease consequent upon gastric irritation, which do not consist purely in fulness of blood. In the forms of disease I have passed in review, the morbid actions observed are confined chiefly, if not altogether, to the vascular system. In the present series of cases, irritation is seated principally in the nervous system of the parts affected, and the forms of vascular excitement which accompany them are secondary, though demanding great attention, since, in the brain, such affections much more commonly terminate in fatal effusion, than in the instances already adduced.

The irritations of the stomach, which produce the affections of the brain I am about to notice, exhibit symptoms of a character different from those just mentioned; whilst the sympathetic affections observed in the brain are likewise indicated by distinct symptoms. The following cases will afford examples of the nature, progress, and terminations of such affections, and the mode of treatment best calculated to afford relief.

CASE 7.—An elderly lady consulted me in the spring of last year, for painful sensations connected with the digestion of her food, which had harassed her for some time, and which lately had been attended by symptoms which had occasioned her some alarm. After eating a moderate quantity of the ordinary kinds of food, she was tormented by a pain in the stomach, which sometimes became extremely violent: the pain was accompanied by great swelling of the stomach, nausea, and occasional vomiting. The bowels were confined, although a mild aperient acted freely upon them; the

tongue dry, smooth, and red ; the epigastric region hot, and sensible to pressure. The pulse was remarkably slow, full, and unsteady, occasionally intermitting. After the pain, nausea, and distension of the stomach had continued for a few days, the patient began to complain of giddiness, ringing in the ears, and pain in the head, with great stupor and imperfect or distorted vision. The state of the head bore a strict relation to the affection of the stomach, and was mitigated or aggravated with it. If the pain and uneasy sensations in the stomach were worse, the stupor and indistinct vision were worse also ; whatever increased the affection of the stomach added to the complaint in the head. Local depletions from the epigastrium, with anodyne fomentations over that region, for an hour or two in the course of every day, afforded great relief. Still, stupor and pain in the head, with affections of the sight and hearing, continued, and demanded special attention. These were materially benefited by blisters.

The effects of aperient medicines in this case demand particular attention, for although the head and stomach were both made worse by constipation, active aperients did more harm than the confined bowels. The state of the stomach, and that of the head, were never relieved by active aperients, such as combinations of aloes and rhubarb, or solutions of the neutral salts in bitter infusions. *They always added to the irritation already existing.* I recommended four grains of rhubarb to be exhibited three times a day, with an eighth of a grain of the muriate of morphia. This lady likewise took the hydrocyanic acid in the *mistura cretae* with great relief. The rhubarb generally kept the bowels sufficiently open : its operation was occasionally assisted by an injection of warm salt and water.

Remarks.—We have to remark, in this case, the nature of the disease, and the effects of remedies. The affection of the sensibility observed in the stomach, evidenced by pain, distension, nausea, vomiting, &c., was unquestionably combined with inflammatory action, and was one of those forms of disease described in the earlier parts of this work, in which lesions of the sensibility of the stomach are combined with a certain form and degree of inflammation. We observe a repetition of the disease in the stomach to arise sympathetically in the brain ; and here the same pathologic state is recognised. At the time that we notice an excited state of the circulation in the brain, marked by the heat of the head, and increased force of the pulsation of the carotid arteries, we observe a degree of irritation which is proper to this organ as a mass of nervous matter ; this irritation, being marked by the giddiness, ringing in the ears, and the imperfect and distorted vision. That these latter symptoms are not altogether dependent upon vascular excitement is evident, since they yield more readily to blisters than to the local abstraction of blood. Hence it is that these forms of irritation in the brain terminate, not in cerebral congestion, not in undue fulness of blood,

but in effusion of serum ; and these terminations occur when previous local vascular excitement in the brain has not existed, or has been so trivial that it is impossible to attribute to it the results which we witness.

We notice in this case a point of great importance—the effect of active aperients on the condition of the stomach and brain. Broussais has said that, in gastric or gastro-enteric inflammations, aperient remedies are decidedly injurious, adding to the irritation and tending to the production of fatal organic changes in the mucous membrane of the stomach. Others have treated these opinions as chimerical, and have continued to harass a membrane already irritated by a succession of remedies calculated to do, in such states, incalculable mischief. From my own experience, drawn from close attention to this class of diseases for many years, I am convinced that, although in many forms of gastric disease aperient remedies, of a certain kind, are borne well and are productive of material benefit, still there is another class of cases in which they are as positively hurtful, and this class is well exemplified by the case just related. Not only are aperients injurious to the particular stomach irritation in question, but they are also prejudicial to the sympathetic affections which it excites, since the irritation in the stomach which produced the sympathetic disease, and upon which it depends, is aggravated by the remedies employed. I believe that a constant repetition of irritating aperients, in a case like the present, would, in all probability, have terminated in serous apoplexy.¹ The mode in which constipation may be most effectually removed, in cases of great irritability of the stomach where constipation appears to add to the complaint, is exemplified, among others in the treatment of the last case.

The forms of gastric irritation I have just described, occasionally terminate in fatal forms of disease in the brain, as the following case will show.

CASE 8.—In October 1835, a young lady, aged seven, was brought to me, slightly indisposed. The parents supposed the stomach to be disordered from some indigestible food which had been eaten. The child complained of griping pain in the belly occasionally ; she had constant uneasiness and soreness about the epiastrum, with a red contracted tongue, and some slight frequency of pulse. There was no complaint whatever of the head, nor did the patient exhibit the slightest degree of stupor. The next day the pulse was slow, creeping and occasionally unsteady. I now looked upon the case with suspicion, and stated my fears of the result. On the evening of that day, the stupor increased, and on the following morning she was profoundly comatose. In this state

¹ "Purging medicines sometimes relieve unpleasant sensations ; but they do not in general produce even this effect ; and all active purges seem to me to increase disorder. It is natural to suppose that strong stimuli will aggravate the unhealthy condition of weak and irritable parts."—Abernethy, p. 53.

she lingered for some days, perfectly insensible to every thing, except pressure upon the epigastrium. If this were done she writhed, and appeared to suffer great pain, uttering a mournful cry. Some dark green evacuations were passed involuntarily during the continuance of the coma. She died on the fifth day from its commencement.

Permission could not be obtained to examine the body.

Remarks.—The brain and spinal chord, in children, appear to sympathise more readily with gastro-intestinal irritation than in adults. Hence is it that we see the slightest forms of gastritis, or even gastric irritation, speedily produce in them convulsive motions by the rapidity with which such irritations radiate to the great nervous centres. The case just adduced is an example of this. Although convulsions, the result of gastric irritation, are more common in children and young persons, still they are occasionally, under certain conditions of the nervous system, observed in adults.

A middle aged man was seized, without any known cause, with profuse bilious vomiting, pain in the epigastrium, and fever. About twenty hours after the appearance of these symptoms, he began to feel some difficulty in depressing the jaw; violent trismus soon set in, and continued for the two following days. The spasm extended to the muscles of the trunk, and the patient died.

On examining the body, the brain and spinal chord were found perfectly healthy, as far as anatomy was capable of appreciating their condition. The stomach throughout its whole extent was of an intensely red colour; this resulted from "the injection of an immense number of small vessels." This inflamed condition could not be perceived till a thick layer of mucus, which lined the surface of the stomach, was removed.¹

One point in the history of this case is deserving of particular attention. Although the disease was ushered in by symptoms exclusively referable to the stomach, still, after the sympathetic disease which the gastric irritation had called forth was fully established, the vomiting and pain in the stomach ceased: yet, after death, we find the most vivid inflammation; although this affection of the stomach had ceased to be indicated by the symptoms which primarily accompanied it, the disease is still observed to remain. In this, as in many other examples detailed in this work, we observe the symptoms of the primitive disease of the stomach to be masked by the more formidable ones which accompany the sympathetic affection.

It is thus that we find the symptoms of gastric irritation sometimes exhibited in the heart, at other times in the lungs, and again in the brain or muscular system, whilst the symptoms directly indicative of a diseased condition of the stomach are obscure. These remarks apply equally to chronic as to acute diseases.

The integrity of the intellectual powers is unquestionably modi-

¹Clinique Médicale, Case 30, p. 676.

fied by the condition of the material organ, through which these symptoms are made manifest: hence is it that we find different states of the mind dependent upon different conditions of the sanguineous circulation in the brain. I have shown, in the preceding cases, the influence exercised by diseases of the stomach upon the condition of the circulation in the brain in the production of various forms of cerebral congestion, and its termination in serous and sanguineous apoplexy. I shall now bring forward some examples to illustrate the influence which these modified conditions of the circulation in the brain, the result of gastric irritation, exercise upon the condition of the intellectual powers, and the production of diseases of the mind.

I was consulted by the friends of a middle-aged lady, in the summer of 1834, for symptoms connected with a disordered condition of the mind, which they fancied depended upon her general health. The patient was subject to extraordinary fits of irritability. She complained of uneasiness in the region of the stomach, which was hot, tender, and the seat of a strong pulsation, but had no other symptom indicating gastric disease. She was materially benefited by leeching the epigastrium, and by the exhibition of warm stomachic aperients: these remedies had always a marked effect upon the condition of the mind. I afterwards lost sight of the patient, but learned that she became a confirmed maniac.

A poor woman had been ill for many months with vomiting after meals and a sense of broiling in her stomach, accompanied by indescribable sensations of uneasiness in the part, which did not amount to pain, but produced the utmost degree of despondency. Stimulating medicines and a full diet were resorted to by her medical attendants. She soon became completely insane, but ultimately recovered.

A young man, mentioned by Pinel, swallowed some cigars: inflammation of the stomach followed, which terminated in melancholy and suicide.

A soldier, whose case is likewise alluded to by this author, swallowed a glass of brandy containing gunpowder: mania succeeded, which lasted several months.

I was consulted by R. V., some time since, for uneasy sensations connected with his stomach. These constantly distressed him, but were worse after eating. He had occasional vomiting, distension of the stomach, eructations, and slight uneasiness in the epigastric region. He received little benefit from medicine, but was so far relieved by leeches and a blister to the stomach, that he returned to his occupation, fancying himself well. I was suddenly summoned to him some time afterwards, and found him suffering from great mental uneasiness, accompanied by pain in the head, heat in the forehead and temples, acute pain in the epigastrium, which the patient could cover with his finger, frequent vomiting of sour fluids, pinched and anxious countenance, cold skin, and a small, frequent pulse. He has never been quite free from uneasiness after his

meals since my first attendance: but the paroxysms of pain now succeeding a meal are terrible till it is rejected by vomiting. His nights are restless: and if he sleep at all, he is tormented by dreams of a most extraordinary character, intensely vivid and distinct. In the waking state he is visited by hallucinations of all kinds, the most common of which is that of a large bird, which flying against his head with great force, produces, as he imagines, his headach. In the day, the desire to commit suicide is almost irresistible, and his wife is obliged to remove all dangerous instruments from his presence.

Small numbers of leeches applied over the epigastrium, succeeded by a blister, using internally a combination of rhubarb with the muriate of morphia, at the same time restricting my patient to a mild, unstimulating diet, completely cured his stomach, whilst his mind was restored to its accustomed tranquillity with it. This is an example of the first degree of those forms of mental excitement the result of gastric irritation, which occasionally terminate in lunacy or mania, and of which I have just reported some cases. This patient would most certainly have destroyed himself had he been treated with stimuli, or suffered to indulge in a mixed, full diet, which created any irritation in the stomach during the process of digestion.

I have reported in the earlier parts of this work some cases of morbid states of the stomach dependent upon large losses of blood; these forms of disease occasionally produce affection of the mind much resembling those which result from other causes.

A lady had been subject for some time to large losses of blood from the uterus. When I first saw her, the chief complaint was of the stomach. She had internal heat and broiling, uneasiness, sensations of something at work within, nausea, vomiting, and great pain after eating. The epigastric region was hot, and the seat of a strong pulsation; manual examination of it produced indescribable feelings of dread and anxiety. Her mental distress was extreme, and the anxiety, restlessness, and irritability verged very closely upon a state of perfect mental alienation. I recommended a full diet, and ordered the carbonate of iron to be taken with myrrh and rhubarb. The patient speedily recovered from this plan of treatment. So closely do symptoms, depending upon totally opposite states, resemble each other.

In enquiring into the influence of the stomach upon the brain, we must commence with a notice of the period of digestion, since we observe the condition of the brain, and that of the intellectual powers to be most materially modified by this process. A full meal determines in the brain a degree of evanescent congestion, or turgescence which continues as long as the process of digestion lasts. The effect of this state of the circulation in the brain is variable in different individuals; in some it inclines to stupor, in

others to loss of memory, it disposes a third to rest, whilst in a fourth it produces restlessness.¹

That condition of the stomach which I have described as active hyperemia, in many instances reacts upon the brain; and by producing a similar state of that organ modifies and changes its mode of action. In case 1, we observe this condition of the brain to be accompanied by disorder in the functions of the senses, the vision was indistinct, there was ringing in the ears and giddiness. In case 2, a similar condition of the brain consequent upon the same state of gastric irritation, we have the intellectual powers affected, the patient lost the faculty of memory, and the tone of the mind in other respects weakened.

In both these instances we observe the first degree of that disturbance in the brain which in more acute forms of disease, terminates in coma, apoplexy, or mania. Passing on to a more serious degree of complaint in the stomach, we recognise the confirmed inflammatory state, combined in various ways with derangements of the sensibility of the stomach, and consequently with different conditions of nervous and vascular excitement in the brain.

The morbid states of the stomach which most materially influence the condition of the brain are three:

1. Inflammatory states.
2. Diseases of its sensibility.
3. Disordered states of its secretions.

In practice, however, none of the states will be found single and uncombined. We find the inflammatory state constantly existing with the disease of sensibility, and the disordered state of the secretions sometimes depending upon inflammation, and in others, due to different forms of nervous disease in the stomach.

The affections of the brain which succeed to these forms of irritation in the stomach are various, and may be classed in the following order:—

1. Evanescence stupor, or drowsiness.
2. Coma.
3. Fatal forms of cerebral congestion.
4. Effusion.
5. Convulsions.
6. Variations in the conditions of the intellectual powers.
 - a. Excitement, delirium.
 - b. Melancholy, depression.
 - c. Loss of one or more of the mental faculties, as memory, &c.
7. Alterations in the functions of the senses.

The brain appears to be influenced through the medium of the stomach, in most instances, by the direct transmission of irritation from one organ to the other. The relations between the mucous

¹ See the chapter on the physiological influence of the Stomach upon the Brain.

membrane of the stomach and the brain are so intimate, that we find if the circulation in the stomach be accelerated, if this organ be in a state of hyperemia, or active congestion, the same state is produced in the brain. Whatever excites the stomach quickens the circulation in the latter organ. These remarks are well illustrated by some of the preceding cases, and it is from this circumstance that we find persons subject to stupor, and great drowsiness after eating, become suddenly apoplectic after a meal. Richond has recorded three cases, and I have detailed two, of patients becoming suddenly apoplectic, or comatose under the influence of gastric irritation, which had suddenly assumed an acute form.

We must remember, as Broussais has very justly remarked, that neither medicine nor food can influence the condition of our organs except by modifying the condition of the stomach. And he assures us that when we observe the eyes and the face redden from intoxication, it is because the mucous membrane of the stomach has itself first suffered from this state.¹ It is, however, when the stomach, previously morbid, is thrown into a state of increased irritability by food greater in quantity than the digestive powers can easily dispose of, or of a nature which is not easily acted upon by the secretion of the stomach, that we observe the forms of sympathetic irritation in the brain that I have already noticed.

It is in these circumstances, more particularly, that we observe the brain sympathising with the stomach, and remark those infinite variations in its functions which follow a meal, in patients suffering from the varied forms of gastric irritation. The brain sympathises with the stomach very readily, when the former organ is healthy and the latter diseased; but, when the brain is previously diseased, we observe sympathetic irritation to be still more readily excited in it by a diseased stomach, and, under such circumstances, the affections of the brain very quickly assume an alarming, and even fatal character.

When the brain once begins to sympathise with an irritable stomach, and we witness alterations in the function of the latter organ, such as drowsiness, headach, succeeding a meal, or an attack of indigestion; we shall find that the least circumstance determines a repetition of the irritation, and hence is it that the symptoms observed in the brain recur more or less after every full meal, whilst the gastric irritation lasts. It is this continued repetition of slight irritations, which ultimately lays the foundation in the brain of organic changes, appearing slight perhaps to the mere pathologist, but which by the irritation they produce in this organ terminate ultimately in fatal effusion or congestion, when the morbid state of the stomach, from some accidental cause, becomes suddenly worse. Case 5 is an illustration of the correctness of these remarks. Most

¹The hundred and twentieth aphorism of this Physiologist, and his commentary upon it in the *Commentaires des Propositions, &c. t. i. p. 153*, are well worthy of perusal on these sympathies.

of the cases, also, collected and recorded by M. Richond, in his work on the Influence of the Stomach upon the Production of Apoplexy, corroborate the importance of this proposition.

The organic changes determined in the brain by continued or constantly repeated gastric irritation are various; they are more commonly found to consist in opacities of the arachnoid, effusions of turbid serum, and states of increased vascularity of the substance of the brain. It should be borne in mind, that diseases of the stomach destroy life, not so much by the changes produced in the organ itself, as by the sympathetic diseases which are established in the course of years, in other organs, by continued or constantly repeated irritation in the stomach. The stomach is necessary to life from the circumstance that by it the nutritive fluid is prepared which supports life. All persons, however, conversant with pathologic researches, are aware that the function of digestion is sometimes well performed by a stomach frightfully disorganised, and we have no supposition of the existence of disease until anatomy reveals it to us. Persons not at all emaciated, and in whom all the functions appear to be properly performed, having occasionally extensive disease of the mucous membrane of the stomach. It is by the reaction of the stomach upon other organs that life is commonly destroyed; by the production of diseases which tend to fatal terminations in organs more important to life than the stomach, as the lungs, heart and brain.

I have brought forward numerous cases in the several divisions of this work, illustrating these points.

Whilst, however, the sympathetic diseases produced by the stomach, in organs essential to life, render the condition of these organs special objects of attention, it must be remembered that the state of the stomach which produced them demands equal attention; since, whilst the latter remains, the sympathetic irritations will be constantly disposed to recur, as long as their exciting cause remains.

CHAPTER XIII.

OF THE TREATMENT.

THE treatment of diseases of the stomach may be divided into two grand sections—dietetic and medicinal. Of the former enough has been said in the writings of Paris, Johnson, Wilson Philip, Abernethy, and others, to render a recurrence to it here unnecessary; the latter must be framed to suit the particular group of symptoms manifested by different individuals; and for this purpose, we shall distribute the symptoms into several classes, taking the

predominant symptoms which demand the chief attention as the type of disease in the class to which it belongs.

1. Of the treatment of those forms of stomach disease whose prominent symptoms are pain and constipation.

In the affections of the stomach which are characterised by these two predominant symptoms, we have internal pain of a more or less violent character, occurring at various periods after a meal, which sometimes increases to such an extent as hardly to leave the patient free for an hour, the pain occasioned by one meal not having subsided, before it it is again called forth by a second. These forms of disease are commonly accompanied by constipation, which invariably aggravates the patient's state; and yet the common forms of aperient remedies cannot be borne, on account of the great additional disturbance they create. I will detail a case as a type of this class of symptoms:—A lady, aged forty-two, had been subject to attacks of pain after food for fifteen years, they were now increased to such an extent that she was never free from distress, mixed food produced agonising pain, and even thin cold gruel occasioned considerable uneasiness. The bowels were obstinately confined, she passed three or four days without an evacuation, which was then only artificially induced; the tongue was red and smooth, the pulse frequent; the epigastrium was scarcely sensible to pressure. She had emaciated much during the two months previous to my attendance. Leeches and counter-irritants were used to the epigastric region without much relief, but the patient lost all pain, the bowels were relieved, and in a few weeks she was completely established by confining her to farinaceous and milk diet, and giving the following medicines. R. Pulv. rhæi gr. iv., morphiæ muriatis gr. $\frac{1}{2}$ M. ft. pil. ter die sumend: c. cochlear. iij. larg. misturæ sequent. R. Infus. cascarillæ 3 vii., magnes. sulphatis 3 ss, magnes. carb. pond. 3 iss, tinct. aloes, 3 ss, acidi hydrocyanici ℥xv., tinct. humuli 3 ii. M. capitat cochlear. iij. larg. ter die. These medicines acted freely, without occasioning pain or any uneasiness. They were employed by the patient for three months with the greatest benefit, occasionally increasing the quantity of morphia.

I have not found material benefit from leeches in such forms of disease as these, nor generally from counter-irritants. I believe the best of the latter that can be employed are blisters, powdering the denuded surface of the latter with a grain or more of the acetate or muriate of morphia. I have seen a number of cases of constipation of this kind, which have been aggravated by drastic and cold saline aperients, yield almost magically to the combination I have just mentioned. Enemas had also been totally inefficient in relieving the constipation. These forms of disease appear dependent upon a slight inflammatory affection of the stomach occurring in patients of great nervous susceptibility; sometimes

they are accompanied by tenderness in the epigastrium, a red, loaded tongue, frequency of pulse, and evening accessions of fever, whilst at others, the tongue is pale, the pulse small, but not frequent, the skin cold, and tenderness in the epigastrium entirely absent. In the former of this class of symptoms, I should consider the disease one of sensibility, combined with a trivial degree of inflammatory action; in the second, a disease of sensibility alone. To the former of these diseases, Barras has applied the term "gastro-enteralgie avec la gastro-enterite chronique;" certainly, in many cases, the symptoms of inflammation are decidedly present, whilst in others the disease of sensibility exists without this complication. In the former state small local depletions are of service, but, if the loss of blood be large, the nervous symptoms are invariably aggravated; three, four, or six leeches applied from time to time are of great service; a larger number frequently increase the pain, and add to the debility of the patient, which if the disease has continued a long time, is, in many cases, very great. The constipation should be relieved by the form of remedy I have given, or a similar one. The following I have found of great service, leeching, or blistering, the epigastrium at the same time, if tenderness be present.

R Magnes. carb. pond. 3*i.*, bismuth subnitratis gr. v., morphiaæ muriatis gr. $\frac{1}{2}$ m . ft. pulvis ter die sumendus.

This is chiefly useful after the constipation has been removed. After the bowels have, by appropriate treatment, been brought to act well without medicine, and the whole of the symptoms of inflammatory disease have subsided, a combination of the muriate or the acetate of morphia with the carbonate or sulphate of iron; or the syrup of morphia with the muriate or the ammoniated tincture of iron, will generally be found serviceable in preventing the recurrence of pain.

The indications under this head are to remove pain, to obviate constipation, by which it is invariably aggravated, to subdue concomitant inflammatory action, and to enable the stomach, when these intentions have been accomplished, to fulfil its offices again properly.

2. The treatment where vomiting and diarrhoea are the predominant symptoms.

In many cases these symptoms exist together, or vomiting comes on occasionally, when an habitual state of relaxed bowel is constantly present. In other cases, vomiting may be present with constipation, or diarrhoea may exist without vomiting. In the great majority of instances, both these symptoms are dependent upon a chronic irritation of the gastro-intestinal mucous membrane, of the inflammatory kind. It is a common circumstance to find persons, indulging in the pleasures of the table, with bowels constantly relaxed, at the same time they have total loss of appe-

ite, whilst the tongue is foul, the papillæ elevated, and the front and edges of the organ vividly red. At times headache or thirst is added to the other symptoms. The most simple aperient in many of these cases will produce profuse evacuation. I have noted many of these cases continuing for months together. Suddenly the symptoms of acute gastritis have been manifested, and the epigastrium, which was not before tender, has become so sensible that the slightest pressure could hardly be borne.

A gentleman, aged forty-eight, had suffered from this state for many months, his bowels were habitually relaxed, two or three loose evacuations daily; a small dose of rhubarb or magnesia produced six or seven stools, he had no appetite, and a loaded tongue, vividly red at the point and edges. He had not the least epigastric tenderness. At times severe vomiting, with increased diarrhoea, would come on, unattended by pain, in which state he found relief from a combination of blue pill with opium, and the mist. cretæ with conf. opii, and hydrocyanic acid. These symptoms suddenly assumed an acute form, he had fever and acute pain in the epigastrium, pressure in this region could hardly be borne, whilst every thing taken into the stomach produced most severe pain. These symptoms were subdued by daily relays of leeches, at the same time the patient took internally the hyd. c. creta with p. ipecac. co. and the hydrocyanic acid in almond emulsion. Under this plan the appetite became good, the tongue clean, and the bowels lost that disposition to irritability which they exhibited before the appearance of the acute attack.

In all cases of this kind, the great point in the treatment is to allay the irritability of the mucous surfaces by mild opiate, antacid, or absorbent remedies; no active measures should be resorted to, they invariably aggravate the patient's condition; a mild, unstimulating, nutritious diet, consisting of milk and farinaceous aliments, with such medicines as the hyd. c. creta, with p. ipecac. co., two grains of the former with one of the latter for a dose, the carbonate of soda with morphia if much acidity be present, or a grain or two of rhubarb with the same anodyne, are the best and safest remedies to be employed; the hydrocyanic acid also may be given with these remedies in the mistura cretæ. Should the epigastrium become tender, it must be leeched; after the repetition of local depletion two or three times, if the tenderness continues, without much heat of skin, blisters may be employed, and the surface powdered with morphia, or dressed with an ointment containing three or four grains of this salt to the ounce.

It is this form of gastro-intestinal irritation which so frequently precedes the development of hepatic and pulmonary diseases. Andral has noticed the tendency to irritation in the lungs of patients so affected. I have collected the cases of several individuals, who seem disposed to hepatic diseases, and who, if these irritations are suffered to remain unchecked, speedily become jaundiced.

3. Treatment of the more acute forms, characterised by great epigastric tenderness and irritability of the vascular system.

When we find the more acute forms of gastric inflammation, arising in persons predisposed to great vascular excitement, with increased heat of skin, accelerated pulse, throbbing of the heart, and giddiness after a meal, continuing during the whole period of digestion, and accompanied by great sensibility of the epigastrium, our first treatment must consist in the local abstraction of blood from this region; this should be continued daily in small quantities proportionate to the strength of the patient, whilst any heat or tenderness remains, or whilst the arterial system is excited by taking food. In the intervals, the stomach should be covered by a fomentation of hops, poppies, or an aqueous solution of opium, whilst we limit the patient to a strict dietetic discipline—tepid gruel, or thin farinaceous food; and give him internally such remedies as the following:—R. acid nitro-muriatici M. xl., morphiæ muriatis gr. $\frac{1}{2}$ to gr. j., syr. simp. 3 i., aquæ distillatæ 3 vii., M. capt. cochlear. iii. larg. 4 tis horis. These are exactly the forms of gastric inflammation, which Broussais has taken as a type of the whole series; and here we agree with him that aperient medicines are decidedly hurtful, not only augmenting the tendency to irritation of the stomach itself, but also increasing the vascular excitement, and disposition to the occurrence of sympathetic affections of other organs, as the heart and brain.

A gentleman, about 45 years of age, had suffered from vomiting, flatulence, and fulness after his meals, for some time, with tenderness and great heat in the epigastrium, acceleration of pulse, throbbing of the carotids, palpitation, stupor, giddiness, and inability to think after having eaten. The daily application of leeches to the epigastrium relieved the symptoms to convalescence; at the same time the patient took internally the mixture prescribed above. In this case a tea-cupful of food (even gruel) brought on the symptoms in their usual form. There are two remarkable points illustrated by this case: the inflammatory form of a great majority of cases of simple indigestion, marked in the first instance by mere fulness after a meal, which was the primary symptom in this case; and the great importance of limiting the patient, in such diseases as the present, to just so much food as may be digested with comfort, without stimulating the mucous coats of the stomach to a degree which may excite the heart or arterial system. In such forms of disease as the present, the mode of local bleeding proposed by Roche might be adopted with great benefit—*i. e.*, to apply leeches to the epigastric region, at the periods only when the febrile or arterial excitement comes on; for, in many instances, this is only manifested after the periods of taking food. In the intervals, the patient is comparatively well; hence, the great point in the treatment is to diminish the excita-

bility of the stomach to impression at the time when food is taken into it. Dr. Roche was of opinion that the inflammatory condition of the stomach, and the irritability consequently manifested, was not much relieved by bleeding in the intervals of the accessions of vascular excitement, which were manifested, as in the present instance, after a meal.

4. Treatment where fulness, distension and acidity, with flatulence and eructations after eating, are the predominant symptoms.

To this class of symptoms the term indigestion is most frequently applied. These symptoms mark a condition of the stomach in which active hyperemia, or morbid fulness of blood, not amounting to inflammation, is the pathologic character of the disease. This is the first step to chronic gastritis, but it is not the disease. In these forms, when the stimulus of food is absent, the coats of the stomach return to their customary state, and the patient is well till another full meal brings on again the congested condition of its mucous membrane. Taking this condition of the stomach as one of its primary morbid states, we may see how easy is the progression into confirmed chronic inflammation, and its terminations in changes of colour and consistence, softening, ulceration, or cancer. The treatment of this form of disease must depend, in a great measure, upon the addition of other symptoms to the predominant ones, just now detailed, such as pain after food, epigastric tenderness, diarrhoea, or constipation. If the epigastric tenderness be not marked, and the bowels, as they commonly are, full and confined, we may commence the treatment by removing the use of stimulants from the plan of alimentation, and limiting the patient to milk and easily digestible food. It is here that aperients, judiciously administered, are of great service; but we must bear one thing in mind in their exhibition, viz., that the stomach and bowels being in a morbid state, are particularly sensible to impression, in these forms of disease; and hence the administration of purgative medicines, although clearly indicated and properly chosen, is sometimes followed by a degree of relaxation of the bowels approaching to hypercatharsis. I have seen this state produced over and over again, when the symptoms of hyperemia of the stomach were present, and the bowels at the same time confined. For the same reason does digitalis produce vomiting when exhibited in this state of the stomach, complicated with disease of the heart. Stimulant diuretics in dropsies or hepatic diseases are productive of the same evils, where this state of stomach is present. The forms of aperient remedies I am generally in the habit of employing in these states are the following:—R. Pil. hyd. gr. ii., pulv. rhæi gr. iii., ipecac. co. gr. i., mucilaginis q. s. fl. pil. ii. These may be taken twice or thrice a day, with two or three tablespoonfuls of the mixture prescribed in the first section. If the flatulence be distressing, a combination of the pil. hydr. with the

pil. galbani co. is of great service. At other times, the blue pill may be used with the extract of hyoscyamus. These remedies should be given with different proportions of the mixture, according to the circumstances of the case. I have found great benefit from exhibiting the pills and mixture one hour before dinner, once in the day, and repeated before the evening meal, if the bowels require it.

If much tenderness and pain exist in the epigastrium, if the pulse be full and hard, the tongue red and dry, small relays of leeches will be of great use. I have frequently cured these indigestions by this remedy alone; four or six leeches, every two or three days, applied during the period of digestion, requesting the patient, at the same time, to abstain from all stimulating aliments, and to live upon thickened milk, sago, or farinaceous food, substituting cocoa for coffee or tea.

Much stress is laid by the French physicians on the use of mucilaginous and acidulated drinks during active hyperemias, or inflammatory states of the mucous coats of the stomach. This is a treatment which is too much neglected in this country, as well as that of anodyne fomentations to the epigastrium. The experiments of Dr. Beaumont¹ show that, during fits of repletion or of gastric derangement, from over stimulating or other causes, or during feverish states of the constitution, the mucous coat of the stomach becomes dry and covered by red patches; this is the state that may be supposed to occur two, three, or four hours after a full meal, the period of its occurrence being marked by thirst. This condition of the mucous coat is also present during ordinary fits of indigestion, and hence the propriety of defending the sentient extremities of the gastric nerves from the rude impression of alimentary substances, when the stomach is in this state, by mild tepid acidulous or mucilaginous drinks, taken in small quantities. Broussais assures us that he has frequently prevented the passage of mere indigestion, of the inflammatory form, into confirmed gastritis, by exhibiting small portions of drinks of this character during the accession of the fits of indigestion after a meal. We know that the sentient extremities of all nerves, throughout the economy, must be kept in a moist state, in order that they may be enabled to fulfil their customary functions. For this purpose, we find the extreme branches of all nerves covered by particular fluids. If these fluids be dried up, the nerve no longer transmits a true impression to the brain, and its organic, as well as its animal sensibility becomes destroyed, or morbidly exalted. Itard has attributed one species of deafness to absence of the fluid in which the extremities of the auditory nerves are distributed, in the semicircular canals and cochlea, in the internal ear.

I do not think that revulsives, such as blisters, the tartar emetic

¹ Experiments and Observations on the Gastric Juice and the Physiology of Digestion. Plattsburg, 1833.

ointment, or plaster, or frictions with croton oil are generally beneficial in affections of the stomach of this character, in fact in diseases of this order generally, unless the disease be perfectly apyretic. I have seen them, if applied whilst any vascular excitement is present, productive of great mischief.

The outline of the treatment, given by Dr. Stokes, of chronic gastritis, in the article of that name in the Cyclopædia of Practical Medicine, is well suited to the incipient forms of inflammatory indigestion. This consists in small local bleedings, diet, and sedatives, such as the salts of morphia, and hydrocyanic acid. The combination of these two latter remedies, in various forms, with mild aperients, is, however, of singular use in various forms of disease of the stomach. I have given some forms of combination in which these remedies may be employed. Dr. Chauffard, of Avignon,¹ employs chiefly, in these forms of indigestion or gastric hyperemia, small bleedings, with anodyne or acidulous drinks. He appears to have been very successful in his treatment of the inflammatory forms of indigestion.

I shall now offer a few remarks on the principal remedies employed in diseases of the stomach.

Bleeding, general and local.—General bleeding in diseases of the stomach, even of the inflammatory kind, is inadmissible, except perhaps in very severe forms of acute gastritis, where a single bleeding might be employed at the commencement of the treatment, prior to local depletions from the epigastrium. The testimony of most authors is against general bleeding. Broussais was singularly unsuccessful in its employment, even in cases of acute disease, which we shall see by reference to his cases thus treated.² Local bleeding is, on the contrary, one of the most efficacious remedies that can be employed in all affections of this kind. It should not precede the use of other remedies, but when these seem to be productive of little benefit, or mere temporary amendment, judicious local depletion from the epigastrium should be employed. This remedy may be resorted to in all cases where fulness of blood in the mucous coat of the stomach is suspected, from whatever cause it may arise: even in cases of extreme emaciation from long continued disease, two, three, or four leeches will sometimes alleviate symptoms which no medicine will benefit. In cases of acute inflammation, leeches may be employed freely to the number of fifteen or twenty at each time. If, however, acute or sub-acute gastritis arise during the progress of an affection of the heart or the liver, the depletion must be more cautiously employed, recollecting that we have to deal with a constitution already enfeebled, or rendered irritable in consequence of long continued disease. In cases of confirmed chronic inflammation of the stomach, more benefit will be derived from the daily application of

¹De la Saignée, et des Emollients dans les Indigestions.

²Cases 5, 6, 7, art. Influence of the stomach upon the lungs.

small relays of leeches to the number of six or eight, than from one large depletion where more are employed. I consider the quantity of blood taken at a time in cases of this kind to be of extreme importance. Unpleasant nervous symptoms very commonly accompany diseases of the stomach of the inflammatory kind, and a trifling degree of inflammation sometimes produces an affection in which the nervous symptoms predominate over the inflammatory; hence local depletion, although of vast utility, should be employed with care and caution, for it is a very common circumstance to see large depletions of this kind succeeded by an aggravation of the concomitant nervous symptoms. The large local bleedings resorted to by Broussais, and the physicians of the French physiologic school, have been productive of infinite mischief. If we peruse carefully the work of Barras, *Des Gastralgies et des Entréalgies*, we shall be convinced that many of the cases related by him of nervous affections of the stomach and bowels were the result of large local bleedings, the use of fifty, sixty, or even eighty, and a hundred leeches at each application. Many of the examples reported by M. Barras, which are considered by him merely nervous diseases, and which were so at the time he was consulted, requiring nothing but full diet and steel for their cure, were, in the commencement, diseases of the inflammatory kind, the patient having been rendered irritable and nervous by the large bleedings and rigid abstinence employed at the commencement of the treatment. De Larroque, whilst he illustrates the utility of moderate depletions from the epigastrium in inflammatory diseases of the stomach, irritating the lungs, loudly exclaims against the large local bleedings practised by many of the physicians of the physiologic school. The period of bleeding is also of importance. Many forms of gastritis are strictly periodical; in others, the prominent features of the disease, as pain and distension of the stomach, heat of skin, and quickened circulation are only present after meals. It is during these accessions that bleeding should be employed; it is at these periods very much more useful both as a palliative and curative remedy, both in producing present relief, and preventing the recurrence of future attacks, than when resorted to at other times in the intervals of the exacerbations of disease.

Aperients.—Many physicians appear to regard all gastric irritations as mere subrural states, and consequently employ strong drastic aperients for their cure. By others, all aperient remedies are condemned, as likely still more to excite a membrane already reddened by irritation. I have shown that there are many forms of stomach disease, in which constipation is a prominent and distressing symptom, adding materially to the inconvenience and suffering of the patient; in such cases, although aperients are indicated, and of the greatest utility when properly selected, they frequently add to the disease and suffering already present, if violent and not combined with sedatives. The best aperients that can be used in

these diseases are combinations of the pil. hydrargyri with rhubarb or aloes, combined with the pil. galbani co., the extracts of hops, lettuce, or hyoscyamus, or the salts of morphia. Calomel, combined with the pil. aloes comp. and some sedative, is also in certain cases useful. The proportion of the mercurial for each dose should rarely exceed one grain. These remedies, with solutions of the neutral salts in bitter infusions, to which the hydrocyanic acid is added, are the forms of aperient which I have invariably found most useful; they operate freely without pain or uneasiness, and generally afford the patient very marked relief.

Sedatives.—This is an important class of remedies in diseased conditions of the mucous membrane of the stomach. In all forms of inflammation, there is mostly an exalted state of the sensibility of the part inflamed. The peculiar organisation, however, of certain nerves, particularly those of the ganglionic system, and the system of the par vagum, render the exalted sensibilities of the mucous surfaces of the stomach and intestines inappreciable by the brain, unless they pass a certain limit. Hence, in some instances, inflammatory disease of these organs proceeds to actual disorganisation, without the patient being aware of its existence; whilst, in others, a slight degree of inflammation will produce intense febrile excitement. It is from a knowledge of the peculiar sensibilities of these parts that we may see the great use of sedatives in the treatment of their inflammatory or other forms of disease; and it is, also, from this circumstance, that I never prescribe an aperient remedy in diseased conditions of the stomach, without combining it with some preparation of morphia, the hydrocyanic acid, or the extract of henbane. The best sedative that can be employed is the muriate of morphia. In all inflammatory affections of the stomach, this remedy, combined with aperients or with alkalies, or given merely to allay pain or irritability, is of great use. Others, however, may be given according to circumstances, such as the acetate of morphia, the hydrocyanic acid, the lip. opii sedativus, or the extracts of hop, lettuce, or henbane. These are the chief sedatives of use in such affections, and perhaps they answer all the necessary indications. They are generally more useful in combination with alkalies or aperients than when given simply and uncombined. The external application of sedative remedies to the epigastric region, in many painful affections of the stomach, I have found of very great service, whether these affections are primitive, or whether they result from organic change. In cases of extreme thicknening of the coats of the stomach, of a scirrhoid character, where the suffering patients are almost worn out with constant pain, such remedies, applied over the epigastrium, most materially alleviate the distress. We have no hope, in many of these deplorable cases, of eradicating or curing the disease; but still we may afford great ease to the patient, enable him to follow some gentle occupation, and to digest a mild unirritating food without pain, and even with comfort. In many forms of disease, a piece of

flannel soaked in a strong solution of opium, and worn over the epigastrium, affords great relief; or, what is more efficacious, a solution of from two to four drachms of the extract of belladonna in six or eight ounces of water, to be used tepid as an application to the part. A poultice of the leaves may be also applied, or one of hyoscyamus, hop, or poppy. These remedies are highly serviceable in all diseases of the stomach accompanied by pain. They may be employed with equal service in acute inflammatory affections of this organ, or where gastric irritation occurs as a complication in fevers and inflammatory diseases generally.

Antacids and Absorbents.—We learn from the researches of Prout, Tiedeman and Gmelin, and Dr. Beaumont, that the gastric juice, during digestion, contains free hydro-chloric and acetic acids, and that these acids are furnished in greater quantity in direct proportion to the more or less stimulating qualities of the food. Under a mild farinaceous diet these acids are barely detected. Many diseased conditions of the stomach are accompanied by this increased generation of acid in its secretions, and in some instances intense acidity after food forms one of the most prominent and distressing features of the complaint. Great intestinal irritability also frequently accompanies this disposition to the formation of acid in the stomach, and the patient is commonly tormented with tenesmus, or purging of small, watery, hot stools. In these cases it becomes necessary to administer remedies to neutralise this excess of acid, as well as to adopt others to prevent the disposition to its recurrence. The *mistura cretae* of the London Pharmacopeia, given with large doses of hydrocyanic acid, is here particularly serviceable, more especially in those forms in which intestinal irritation is present. I have found this combination of remedies of singular service in gastric diseases attended with a profuse secretion, or formation of acid. At other times, the ponderous carbonate of magnesia, or soda, combined with morphia and the sub-nitrate of bismuth, may be employed.

It occasionally happens, that intense acidity accompanies or succeeds to a state of great bodily weakness, particularly when this is the result of large losses of blood, as in the cases I have detailed in the section of the work on Diseases of the Stomach produced by Anemia. Here the condition of the stomach is dependent upon that of the constitution generally, and yields to remedies suited to the general affection upon which the morbid state of the stomach appears to depend. In these forms of disease, the various preparations of iron are eminently serviceable: combinations of the carbonate of iron with myrrh and rhubarb, are perhaps amongst the most efficacious that can be employed.

Tonics.—There are many forms of gastric disturbance which resemble hyperemia, or inflammation, which are not benefited, but rather rendered worse, by a treatment framed to suit such forms of disease; hence it is, that we very commonly see local depletion from the epigastrium and aperient medicines injurious to many affections

of the stomach, which we should have supposed, from the symptoms which they exhibited, would have been benefited by such remedies. It is because these symptoms depend upon some other cause, and not upon hyperemia or inflammation, that these remedies are not successful; and yet it is difficult, nay sometimes impossible, to distinguish between vascular irritations of the stomach and other affections of this organ, the results of treatment being occasionally our only guides.¹

It is in many of these states, that we find tonics succeeding where an antiphlogistic treatment has failed, or been positively hurtful. I subjoin one or two cases, by way of example.

A gentleman consulted me, complaining of unpleasant symptoms connected with his head and stomach, which invariably harassed him after eating, and during the process of digestion. He had swelling of the stomach, nausea, flatulence, uneasiness and tenderness in the epigastrum with great drowsiness and stupor. He took, at first, combination of the blue pill with rhubarb, and the stomachic aperient mixture prescribed at page 174. These remedies afforded no relief; the patient was worse after their use, and yet the symptoms characterising his complaint, both in the head and stomach, resembled very much a condition of hyperemia in both organs, which we see so frequently benefited by such a plan of treatment. I now recommended the carbonate of iron, to be taken in combination with myrrh and rhubarb. The use of these remedies for a few days, completely removed the affection of both organs. This is not a case of rare occurrence; I have repeatedly noted cases of pain in the stomach, with constipation, heat, beatings, and tenderness in the epigastrum, exactly resembling hyperemia of the stomach, or the nervous centres of the epigastrum, aggravated by leeches to this region, and the use of aperients, yield readily to such remedies as those I have just noticed.

I have repeatedly been consulted by a young lady, who suffered constant pain in the stomach after eating; at the same time her bowels were habitually constipated, the epigastric region was hot and tender, and the seat of strong pulsations; the tongue dry and coated, the papillæ vivid and largely developed. No permanent relief was afforded in this case from local bleeding or aperients; after the complaint had been established for some time they were injurious. Great benefit was derived subsequently from the carbonate of iron, with myrrh and rhubarb.

Tonics are useful in many morbid states of the stomach, which may be referred to four classes;—

1. Primitive morbid conditions, resembling inflammatory affections, which are aggravated by an antiphlogistic treatment, or by aperients.

2. States of disease, succeeding to inflammation, which have been benefited by an antiphlogistic treatment in the commencement,

¹ See the remarks on this subject at p. 48.

but where this no longer affords relief, or adds to the severity of the symptoms.

3. Various morbid states of the sensibility of the stomach. These are occasionally accompanied by intermittent neuralgic affections in other parts of the body.

4. States of general debility, and many local symptoms, as pain, nausea, and vomiting, which accompany confirmed organic diseases of the stomach.

I have shown in the former parts of this work, that there are certain forms of irritation in the stomach which succeed to affections in the first instance inflammatory, which are benefited by a tonic treatment. The disease, at first one of inflammation, having been subdued, terminates in one of debility ; and the remedies found useful in the earlier forms of the affection, become decidedly injurious in the latter. We often find pain, distension, acid eructations, nausea, and vomiting, with tenderness in the epigastrium, succeed to irritations which have been, at the onset, benefited by leeches to the epigastrium, warm aperients, and a rigid diet. These symptoms are very liable to come on as the sequel to inflammatory affections of the stomach which have been treated with large losses of blood from the epigastric region. Most of the cases detailed by M. Barras, cured by tonics and a full diet, were diseases of debility in the stomach produced in this way. The great art in managing affections of the stomach of this kind is to mark the point at which the disease ceases to be inflammatory and passes into one of debility or of sensibility. It is at such a time that the antiphlogistic plan should be abandoned, and tonics and a fuller diet substituted for it. I have frequently been consulted by patients who have been reputed the subjects of confirmed chronic gastritis ; they have been pale, emaciated, tormented with pain and sickness, and have had stomachs so sensible that they could hardly take the least particle of food without pain. These persons have been treated with leeches to the stomach, which have at first afforded relief ; subsequently, by different modes of counter-irritation, blisters, and the tartar emetic ointment : still they go on getting worse, the gastric symptoms continue and they are supposed to be suffering from an incurable chronic gastritis. These cases were originally inflammatory affections ; the inflammation has been subdued, and passed on to a disease of debility. This has been accompanied by its peculiar symptoms, which have been supposed to depend on a continuance of the inflammation when they were due to an opposite cause. By placing such cases on a full diet, and exhibiting freely the carbonate of iron, the symptoms have soon given way, and the patients have speedily recovered their usual health, all the unpleasant symptoms connected with the stomach speedily subsiding. The combinations of the carbonate of iron with the muriate of morphia, in such cases, if much pain exist, or with rhubarb, if constipation be present, are perhaps among the best remedies that can be employed.



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